ALCOHOLISM AND THE NAVY: AN INTRODUCTION

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THESIS

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An Introduction

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ABSTRACT

Alcoholism has been called the most serious drug problem in the United States today. Estimates vary, but the rate of alcoholism in the Navy is probably at least as high as that found in the civilian workforce (between three and five percent of all employed personnel). Alcoholism is a multifaceted disease for which no cure has been found, but which can be arrested. This paper discusses the Navy alcoholic and presents data which indicates the typical Navy alcoholic is in his early thirties, he is in a rating which is not highly technical in nature, he has some type of security clearance, and he is either on shore duty outside the United States or on sea duty. To treat alcoholics the Navy has a series of Alcoholic Rehabilitation Centers and Alcoholic Rehabilitation Units at Navy hospitals around the country. These are largely staffed by recovered alcoholics who use generally accepted methods of treatment. Published Navy rehabilitation rates generally exceed an overall rate of 65 percent effective, although there are some questions about the validity of the statistics.

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I. INTRODUCTION

"ALCOHOL DEPENDENCE IS WITHOUT QUESTION
THE MOST SERIOUS DRUG PROBLEM
IN THIS COUNTRY TODAY"

-National Commission on
Marihuana and Drug Abuse
March, 1973 (Ref. 53 p. 143)

Probably one of the most mentioned but least understood problems in the Navy today is alcoholism. The Navy has traditionally considered the consumption of alcoholic beverages as an integral part of a number of aspects of Naval life. Drinking is generally directly associated with social and recreational functions in the Navy and often indirectly associated with business functions. Parties involving alcohol consumption which in civilian life would simply be called cocktail parties have, in the Navy, been given colloquialisms such as "wetting-down" party, a traditional party given to celebrate one's promotion, and "hail and farewell" party, given in honor of arriving and departing crew members. Although it is not official policy, drinking to excess is generally taken lightly at all but the most formal occasions. It is this writer's opinion that the subject of alcoholism and problem drinking is not taken seriously by a large percentage of Navy personnel, largely due to a prevailing lack of understanding about the disease.

The problem of understanding is not unique to the Navy. Contributing to the problem is the current general lack of

knowledge concerning just what alcoholism is, what causes it,and how it can be cured. It should not be inferred that the lack of knowledge is due to a lack of research in the field, as a plethora of studies have taken and are taking place. Alcoholism research might be loosely likened to cancer research in that the disease appears to have several forms and many aspects of the relationships between these forms are not fully understood.

Before proceeding further, it would be beneficial to make some attempt at defining just what alcoholism is. Two definitions by recognized authorities are offered below:

> 1. American Medical Association - "Alcoholism is an illness characterized by a preoccupation with alcohol and loss of control over its consumption such as to lead usually to intoxication if drinking is begun; by chronicity; by progression; and by tendency toward relapse. It is typically associated with physical disability and impaired emotional, occupational, and/or social adjustments as a direct consequence of persistent and excessive use." (9, p.6)
>
> 2. Alcoholics Anonymous - "The explanation that seems to make sense to most A. A. members is that alcoholism is an illness, a progressive illness, which can never be cured but which like some other illnesses, can be arrested. Going one step further, many A. A.'s feel that the illness represents the combination of a physical sensitivity to alcohol, plus a mental obsession with drinking which, regardless of consequences, cannot be broken by will power alone." (5, p.4)

Following a precedent set by most writers researching a particular field, this writer offers his own definition based on significant common factors found among the definitions arrived at by others:

> Alcoholism is a progressive, incurable illness characterized by psychological and/or physical addiction to alcohol and some decrement in personal, social, or occupational functioning.

It should be emphasized that alcohol-related problems are not only caused by alcoholics. Non-alcoholics also cause alcohol-related problems from an organizational and sociological standpoint by such activities as driving while intoxicated, being drunk while on duty or working, and performing at a substandard level due to hangovers.

The Navy has only recently decided to make a concentrated effort to do something about alcoholism and problem drinking. Most of the effort at the present time is being directed at identifying and rehabilitating the alcoholic. A limited amount of research is being sponsored, but as of now has had little impact, if any, on Navy policies on alcoholism. In February, 1973, a computer search was initiated by this writer for reports on or related to alcoholism on file at the Department of Defense Documentation Center. The resulting report bibliography listed only three studies undertaken for or by the Navy. The reports listed were all highly technical in nature and generally not suitable as a basis or background for the study of alcoholism in any broad, conceptual sense.

It was felt by this writer that due to the paucity of Navy-related information about alcoholism and problem drinking, a paper taking a somewhat general approach to the subject might be beneficial from an information standpoint and as background information for future studies. This paper will review some of the basic aspects of alcohol use and alcohol abuse based on available literature in the field.

Some of the aspects reviewed are: the historical and current drinking practices of individuals, the physiological effects of alcohol use, and the psychological and sociological aspects of alcohol abuse. Where possible, an attempt will be made to illustrate those alcohol-related aspects particular to the Navy or Navy alcoholic which differ from those found among the general alcoholic population.

In addition to the material covered above, this paper will examine the Navy's formal approach to alcoholic rehabilitation. In addition, an attempt will be made to identify certain characteristics of Navy alcoholics. Where possible, these characteristics will be contrasted with known characteristics of the Navy and general populations and with alcoholics in the general population.

II. DRINKING: PAST AND PRESENT

A. HISTORY OF ALCOHOLIC BEVERAGES

No one is exactly sure how long the use of alcoholic beverages has been with man, but estimates place its usage as far back as the Paleozoic era, approximately 200 million years ago (56, 57). Virtually every culture has used alcoholic beverages for religious, social, or medical reasons. The Bible contains many references to the use of alcohol, among them Genesis II, 20-21 - "Noah planted a vineyard; and he drank of the wine and was drunken." Leviticus X, 9 warns of the evils of drinking "Do not drink wine nor strong drink-in the tabernacle, lest ye die." The Bible seems to condone drinking in Proverbs XXI where it is written, "Let him drink and forget his poverty."

There are numerous historical accounts of the use of alcoholic beverages in the New World by the early settlers. Virtually all of the early missions in the west had vineyards which produced the wine used by the priests. In spite of the common usage of alcohol by cultures, virtually all have social and legal taboos against drinking to excess. The United States has "run the gamut" in this area. Between 1830 and 1919 the women's Christian Temperance Union and the Anti-Saloon League conducted a concentrated effort to control drinking in the U. S. Early efforts were directed towards the use of alcohol in moderation and their campaign

during the first decade was directed at abstinence only from distilled spirits (33,39). Gradually the emphasis shifted from moderation to complete abstinence and as the movement gained support its demands became more and more emphatic. The culmination of the movement in the United States was the passage in 1920 of the 18th Amendment prohibiting the manufacture and sale of all alcoholic beverages. It took 13 years for prohibition to be officially deemed a failure with the passage of the Twenty-First Amendment repealing the Eighteenth. Even though the federal government made it legal to manufacture and sell alcoholic beverages, many states and local governments continue to maintain tight control. As recently as 1967 it was illegal in the state of Tennessee to legally purchase a mixed drink anywhere in the state. Heated, emotional arguments are the rule when the legality of sale is established by local referendum. Generally, the forces against legalization consist of both the churches and those who engage in the illegal sale of alcohol. Both groups are generally strong in terms of popular and financial support.

It is obvious that as the laws surrounding alcohol are relaxed, the American public is still insisting on maintaining its right to choose for itself whether or not to consume alcoholic beverages. As long as this trend continues, there will be individuals who continue to drink to excess for various reasons. Because of this, there are numerous organizations on all levels that have undertaken the job of educating the public as to the intelligent use of alcohol

and the potential health and social problems associated with excessive use.

B. CURRENT DRINKING PRACTICES IN THE UNITED STATES

In 1971, approximately 6 million gallons of alcoholic beverages were produced for consumption in the United States. Of this just over 5 billion gallons was produced in beer, 310 million in distilled spirits, and the remainder, some 600 million gallons in wine (74). The per capita consumption for these beverages over the past 21 years is illustrated graphically in figure 2-1.

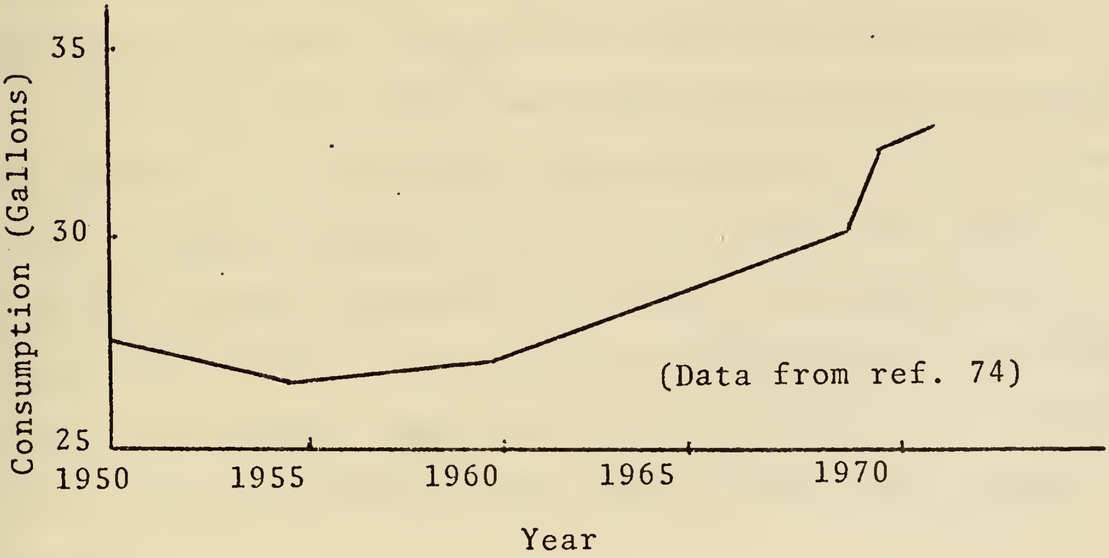


Figure 2-1 Per Capita Consumption of Alcoholic Beverages 1950 to 1971

Figure 2-1 gives the combined total annual consumption for all types of alcoholic beverages. It might be of interest to note that during the time period covered, the per capita consumption of beer went up 13.6 percent to 28.38 gallons, and the consumption of wines went up 56 percent to 2.09 gallons.

It is clear, especially to those who are not drinking their "share", that somebody is drinking a lot of booze. Drinking is so much a part of American life style that we even have social inventions like the cocktail party, the "wetting-down" party, and the champagne supper to accommodate it. Also, a great many slang phrases are in common usage such as "loaded", "tight", "juiced", "high", "hair off the dog that bit me", "one for the road", etc.

A national survey of drinking in the United States was conducted in 1963 (52). It showed that only 29 percent of the population over the age of 21 were total abstainers. The prevalence of drinking was found to be greater among men (79 percent vs. 63 percent), the well-educated, and the well-to-do. Among religious denominations, Jews were found to have the highest percentage of drinkers followed by Catholics, and Lutherans. Of the major denominations, the Methodists and Baptists showed the lowest percentage of drinkers. The Baptists, Methodists, and Jews had the fewest heavy drinkers.

The most recent national study available at the time of this writing was released March 22, 1973 by the National

Commission on Marihuana and Drug abuse (53). The Commission was given one million dollars to conduct a comprehensive study of the causes of drug abuse. It found that about 53 percent of the adults and 24 percent of the youth are current users of alcohol. About 20 percent of the adults remembered trying alcohol for the first time at age 10 or younger while 40 percent of the youth tried alcohol during that period. A breakdown by age of the percent of drinkers is illustrated in figure 2-2 from data published by the Commission (53).

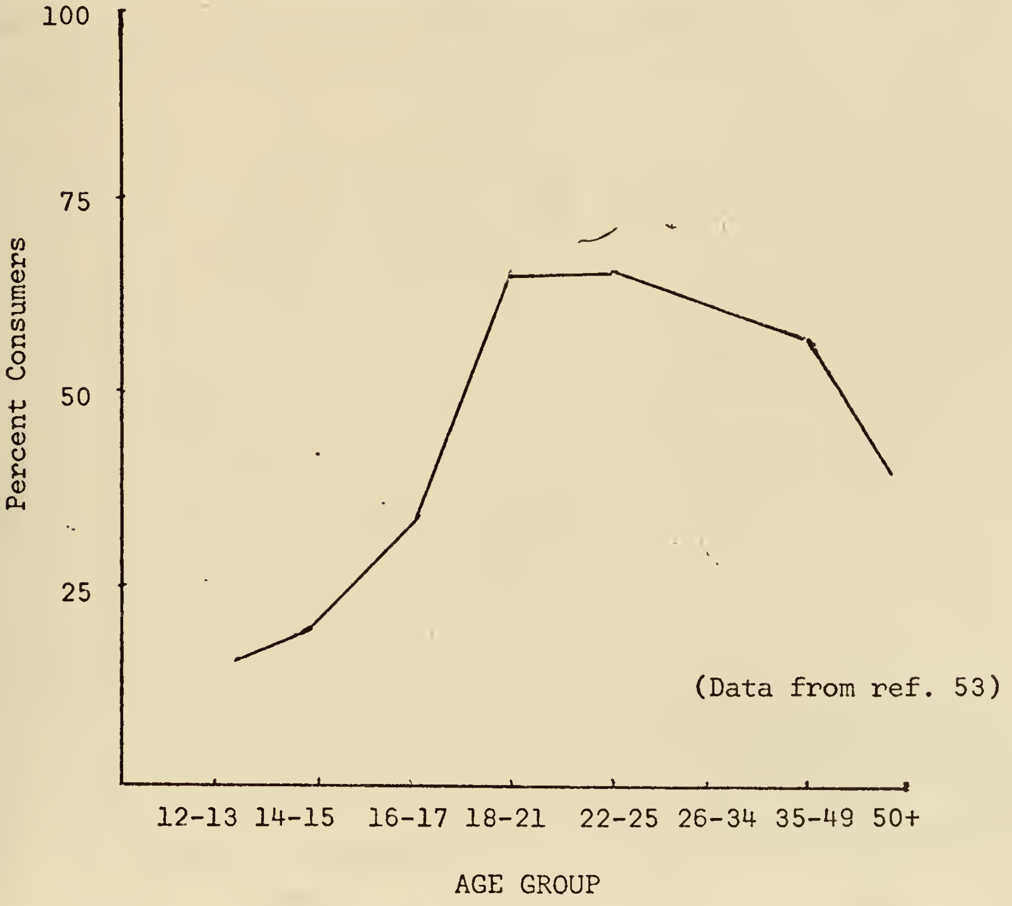


Figure 2-2 Alcohol Consumption By Age Group

The Commission hypothesized that legal availability was probably responsible for the dramatic increase between the 16-17 group and 18-21 group. Consumption of alcohol within the week prior to the survey was the criterion established to differentiate between consumers and non-consumers.

Of the 2411 adults surveyed for the Commission's study, 38 percent of those who were less than high school graduates and over 72 percent of those with at least some college were alcohol consumers. Among students of junior high school, high school, and college, the percentage who had used alcohol is presented graphically in figure 2-3.

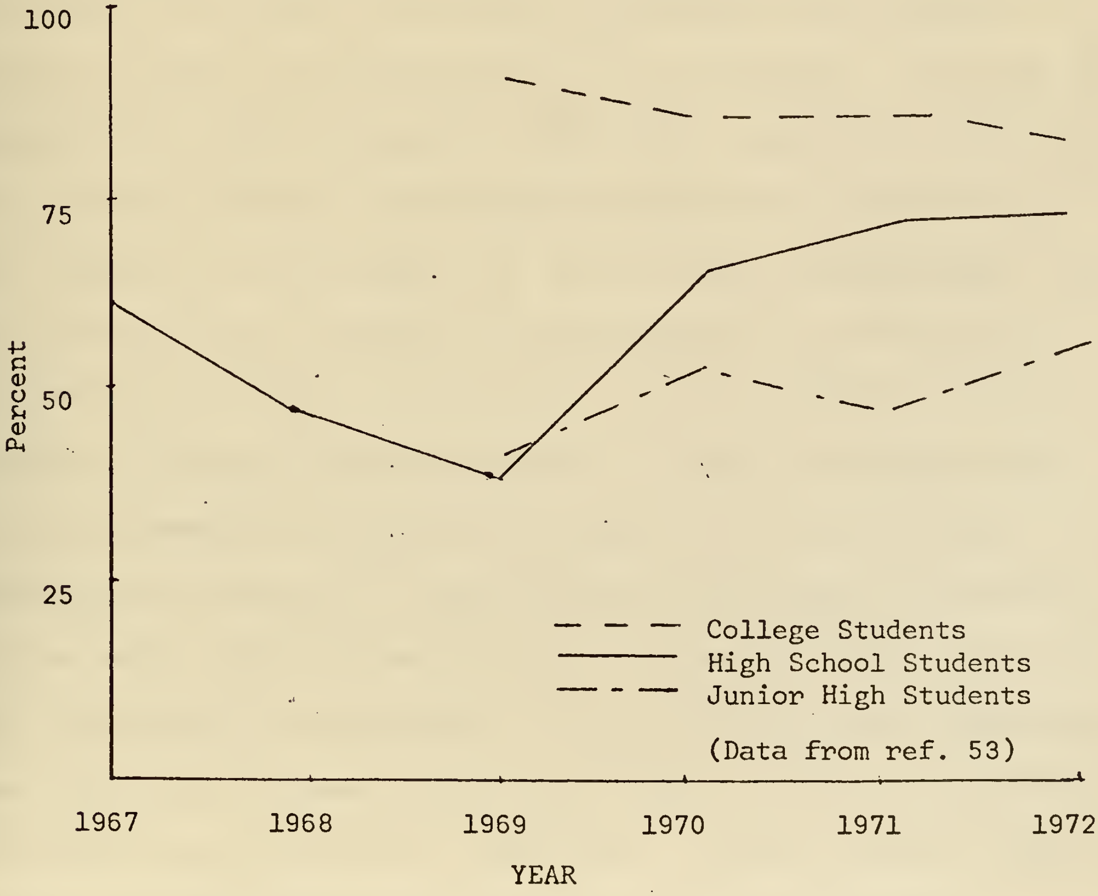


Figure 2-3 Percentage of Students Who Have Used Alcohol

On a regional basis the Northeast was found to have the highest percentage of adult alcohol consumers (65 percent) while the South had the lowest (something over 37 percent). Among community types, large Metropolitan areas were home for about 65 percent of the adult consumers.

An understanding of the drinking patterns of individuals is important for a variety of reasons. First, the knowledge is useful for determining what personnel should be the primary targets of alcohol-related educational campaigns. The assumption here is that in a situation in which resources are limited, it is not economically feasible to develop and present a large number of different educational strategies directed to all age, religious, regional, and economic groups. This is the situation in the Navy now. Second, the information could serve as a basis for research to determine how the Navy affects the drinking habits of individuals. It was reported in the April 11, 1973 issue of Navy Times that only about three percent of the personnel in the Navy are non-drinkers. This was based on a study conducted by the Bureau of Social Science Research. Based on comparisons with information presented previously in this section, it is obvious that there is a much higher percentage of drinkers in the Navy than in the general population. The reason for the difference is not known. It may be that the recruiting and selection processes are such that drinkers or would-be drinkers are attracted to the Navy. Another reason might be that a climate might be present in the Navy in which

non-drinkers are made to feel as if they are social outcasts. If the factors which cause groups to deviate from their expected drinking patterns could be isolated, certain beneficial policy revisions would likely be initiated. Although it is current Navy policy to allow its personnel to choose for themselves whether or not to drink, it might be that the choice is not independent of membership in the organization.

An organization's alcohol-related problems are not necessarily proportional to the number of individuals who drink, but rather the way in which they drink. For this reason it is imperative that individuals understand the effects produced by alcohol. An examination of some of the physiological aspects of alcohol use will be presented in the following section.

III. PHYSIOLOGY AND CHEMISTRY OF ALCOHOL

A. PRODUCTION OF ETHYL ALCOHOL

Ethyl alcohol is formed by a process known as fermentation. Fermentation is a naturally occuring process in nature and was discovered, rather than invented by man. In general, there are three processes which are associated with the production of alcoholic beverages; namely, fermentation, brewing and distillation.

Fermentation, a process generally associated with the production of wine, has been known to man since before written history (32). Basically, to produce wine, some type of fruit juice is placed in a warm area for a period of time, during which either naturally present or chemically added yeast acts on the sugar present in the juice to produce alcohol. A by-product of this process is carbon dioxide. Fermentation continues until all of the sugar is changed into alcohol, yielding a solution that contains about 14 percent alcohol. After the fermentation process is complete, the wine is allowed to age for a period of from several months to several years, during which time other changes take place to improve the taste, aroma, and color of the wine. Commercial production of wine is, of course, much more complicated than has been indicated here.

Beers and ales are produced by a process known as brewing and in this case the raw materials for the process consists

of a mixture made from cereal grains. Moist grains are allowed to sprout, after which they are dried, ground, and mixed with water and other substances. In the brewing process the starch in the mixture is first changed into sugar and then from sugar into alcohol. The bitter taste of beer and ale is produced from hops, whose only function is to add flavoring. Beer made from brewing normally contains between three and five percent alcohol by volume.

The stronger alcoholic beverages are made by a process known as distillation, a process which uses some features of each of the two previously discussed processes. First, some fermentable mixture is allowed to ferment; the mixture can be basically a grain mixture or a fruit mixture depending on the desired end product. After the basic mixture has fermented it is boiled and the vapors collected and condensed. Beverages made from this process generally contain between 40 and 50 percent alcohol (80 to 100 proof) and are labeled as scotch, bourbon, brandy, etc. depending on the composition of the base mixture.

B. THE METABOLISM OF ALCOHOL

Alcohol, or more correctly ethyl alcohol or ethanol, is but one of a multitude of compounds belonging to the general class of alcohols. It is a colorless, fairly weak smelling, liquid with a great affinity for water; if it is not kept in an airtight container it will become diluted by virtue of the fact that it will draw water vapor from the air (32).

The specific gravity of alcohol is approximately 0.8 times that of water. Its chemical formula is CH_3 CH_2 OH, or as sometimes shortened by chemists C_2 H_5 OH. Several metabolic (oxidative) changes occur in the body on ethyl alcohol that is ingested. The alcohol is first transformed into acetaldehyde which after undergoing several more transformations is eventually broken down or oxidized into carbon dioxide and water. The rate of oxidation remains fairly constant at a rate of approximately one gram per ten kilograms body weight per hour (9). Thus, approximately seven grams (two-thirds ounce of whisky or eight ounces of beer) are metabolized per hour in a 150 pound male. Each gram of alcohol produces about 7 calories of energy and from this it follows that the same average 150 pound man could derive about 1176 calories per day from the metabolism of alcohol. The liver is the primary converter of alcohol and it is there that some 85 to 90 percent of the alcohol in the body is metabolized (9, 32, 35, 56). Since the size of the liver in proportion to the size of the body is about the same for all individuals, about the same proportion of alcohol is destroyed in all individuals.

Alcohol can disappear from the body either through oxidation or elimination. That alcohol not oxidized in the body (less than 10 percent) is passed from the body through perspiration, the lungs, or the urinary tract. The amount of alcohol in the breath corresponds fairly closely using constant multipliers to the blood-alcohol level and hence

the use of "breathalyzers" for the determination of blood-alcohol level by the various law enforcement agencies. A urinalysis is also sometimes given for the same purpose.

It should be emphasized that there are few "absolutes" when speaking of alcohol's effect on the body. Oxidation rates, absorption rates, and elimination rates do vary from individual to individual and at times in the same individual often for unexplained reasons. The figures are, however, accurate enough to be of use, particularly in medicine and law enforcement.

C. ALCOHOL DISTRIBUTION IN THE BODY

After it reaches the stomach, alcohol rapidly enters the bloodstream through the blood vessels lining the stomach and intestines. The rate of absorption varies from individual to individual and depends or is influenced by a number of factors some of which are discussed below (9, 30, 40):

1. Concentration of ethanol in ingested beverages: Up to about 80 proof concentration the higher the concentration the faster will be the rate of absorption. If the same amount of alcohol is ingested in the form of martinis, and at a later time in the form of beer, the martini drinker will show higher blood-alcohol levels.

2. Speed of consumption: Higher speed of consumption results in higher blood-alcohol levels. A pint of gin consumed rapidly will result in a higher blood-alcohol level than will the same pint taken in one ounce shots over a period of a couple of hours.

3. Emptying time of the stomach: Emptying time is a factor that varies on an individual basis and is affected by emotional reactions such as anxiety and fear. In general the faster the stomach empties the higher will be the resulting blood-alcohol level.

4. Eating with drinking: Blood-alcohol levels may be reduced by as much as 50 percent when substantial quantities of food are taken along with alcoholic beverages.

5. Amount of congeners in the beverage: In general, the higher the percentage of non-alcoholic chemicals in beverages, the slower will be the rate of absorption. For example, vodka will be absorbed faster than beer or wine.

The amount of alcohol in the blood is commonly measured in percent. As an example, a blood-alcohol level of 0.1 percent will be produced in two hours in an average 150 pound man by drinking between 4 and 5 ounces of whiskey (35). By contrast, a 300 pound individual would have blood-alcohol level of 0.05 percent under the same conditions.

D. THE EFFECT OF ALCOHOL ON THE BODY

Alcohol is a nervous system depressant that continues to act as long as alcohol is present in the bloodstream and acts in severity in proportion to the blood-alcohol level present. Ethyl alcohol is structurally similar to ether and is considered as belonging to the anesthetic group of chemicals (35). The releasing of the inhibitions normally felt during the early stages of intoxication is a result of

the alcohol acting upon the higher centers of the forebrain. This results in a sense of stimulation. At the same time those centers of the brain controlling speech and memory are impaired and parts of the cardiovascular system, primarily the small blood vessels, are dilated (15). It is of particular importance that alcohol's effect on the blood vessels be understood because of the wide use of alcohol to "take the chill off". With low concentrations of alcohol, the blood vessels at the surface of the body dilate causing a feeling of warmth as heat is radiated from the body. While this is happening, however, the vessels of the viscera, or internal organs become somewhat constricted causing the internal temperatures of the body to drop which in turn results in slower vital functions and a corresponding decrease in resistance to infection (15,73). Thus, if an individual is chilled and his surroundings are cold, he will lose body heat through the ingestion of alcohol (the alcohol does provide fuel in the form of calories but the heat provided from the calories does not compensate for the heat lost through radiation). If, however, an individual is chilled and given a small amount of alcohol in warm surroundings he can actually absorb heat into the body as a result of the dilated surface blood vessels.

As the concentration of alcohol rises in the bloodstream, the midbrain and cerebellum centers are depressed. These areas are those which control movement and when depressed, they result in lack of coordination and significantly slowed

reflex movements. Also at this time slurred speech becomes quite evident (15,73). Eventually when the alcohol level rises to the point of criticality the vital centers of the lower part of the brain are depressed. A condition known as alcohol coma can result at this time. This condition is especially dangerous since death can occur as a result of respiratory depression (9). Fortunately, unless an individual is clearly directed to harm himself the body reacts to save him from this situation. Most individuals will enter a state known as alcohol stupor (passing out) wherein he may go into a heavy sleep until the body has had time to oxidize or eliminate most of the alcohol in the bloodstream.

The House of Delegates of the American Medical Association has recommended that individuals with blood-alcohol levels of 0.1 percent (100 mgm/100ml) or more are too intoxicated to drive (9). According to the California Highway Patrol, this same blood-alcohol standard is used in the State of California to determine when an individual is to be charged with driving while under the influence of alcohol. By law, individuals suspected of drunk driving are given the choice of the type of test (blood, breath, urine) to be performed on them to determine alcohol content of the blood. Under the law of implied consent, an individual refusing to take any of the tests is legally admitting to a state of intoxication. When a blood sample is not used, blood-alcohol level can be determined by using the following ratios from "freshly secreted" samples (9).

Urine : Blood = 1.25 : 1
Saliva : Blood = 1.12 : 1
Blood : Alveolar Air = 2100 : 1

It is generally accepted that blood-alcohol levels on the order of 0.5 percent can be fatal (9, 35, 56). Table 3-1 is presented to illustrate the effect of various quantities of alcoholic beverages in the body (32, p. 12).

A blood-alcohol level of about 0.03 percent is generally taken as a level, below which no detectable mental, behavior, or reflex changes take place (56). Very low blood-alcohol levels (0.03-0.05 percent) usually produce mild sedation. Changes in behavior (garrulousness or agressiveness, for example) occur in some individuals at blood-alcohol levels of about 0.05 percent. Intoxication is obvious at levels above 0.15 percent. The signs, as indicated in Table 3-1, are abnormality of gross bodily functions and mental faculties. Generally, it can be said that judgment and reaction time are first affected by alcohol and, as the blood-alcohol level rises, coordination is affected.

In the Navy, an individual's blood-alcohol level cannot generally be used as evidence for criminal prosecution by military authorities. It can, however, be used for administrative purposes. Blood-alcohol level might be used as the basis for administrative discharge proceedings or as the basis for ordering an individual into an alcoholic rehabilitation program. There is no recognized blood-alcohol level for intoxication in the military. This is not to say that

Table 3-1

SOME EFFECTS OF ALCOHOLIC BEVERAGES*

Amount of beverage	Concentration of alcohol attained in the blood	Effects	Time required for all alcohol to leave the body
1 highball (1½ oz. whisky) or 1 cocktail (1½ oz. whisky) or 3½ oz. fortified wine or 5½ oz. ordinary wine or 2 bottles (24 oz) beer	0.03%	Slight changes in feeling	2 hrs.
2 highballs or 2 cocktails or 7 oz. fortified wine or 11 oz. ordinary wine or 4 bottles beer	0.06%	feeling of warmth-mental relaxation slight decrease of fine skills-less concern with minor irritations and restraints	4 hrs.
3 highballs or 3 cocktails or 10½ oz. fortified wine or 16½ oz. (1 pt.) ordinary wine or 6 bottles beer	0.09%	Buoyance-exaggerated emotion and behavior-talkative, noisy or morose	6 hrs.
4 highballs or 4 cocktails or 14 oz. fortified wine or 22 oz. ordinary wine or 8 bottles (3 qts.) beer	0.12%	Impairment of fine coordination clumsiness-slight to moderate unsteadiness in standing or walking	8 hrs.

Table 3-1 (cont'd)

Amount of beverage	Concentration of alcohol attained in the blood	Effects	Time required for all alcohol to leave the body
5 highballs or 5 cocktails or 17½ oz. fortified wine or 27½ oz. ordinary wine or ½ pt. whisky	0.15%	Intoxication-unmistakable abnormality of gross bodily functions and mental faculties	10 hrs.

*Based on a person of "average" size (150 pounds). For those weighing considerably more or less, the amounts would have to be correspondingly more or less to produce the same results. The effects indicated at each stage will diminish as the concentration of alcohol in the blood is reduced by being oxidized and eliminated.

*Table from ref. 32, p.12.

the level has no meaning, but rather that blood-alcohol level generally needs corroborating evidence, most often eye-witness accounts, before it is used. Technically, intoxication which leads to an individual's incapacitation can be viewed by legal authorities in the Navy as misconduct by the individual. If an individual has an accident or is in some way incapacitated due to his own misconduct he can lose many of the benefits of service (disability payments by the Veterans Administration, for example) he might otherwise be due.

The lack of clear and universal standards for intoxication is, in a sense, understandable. A 0.10 percent blood-alcohol level has been adopted in several states as an indication of intoxication for driving purposes. A question might be asked regarding the blood-alcohol level which would indicate an individual is too intoxicated to paint a compartment of a ship or work on a complex piece of electronic equipment. It would seem that an impairment of an individual's motor and mental functions could in some on-the-job cases be disasterous while in other cases only inconvenient or time consuming. As can be seen, the question of intoxication is highly judgmental in nature.

Due to the individual variations in the way alcohol affects the body it would be virtually impossible to set a series of blood-alcohol levels as standards for performing various tasks. Some of the ratings in the Navy are required to perform much more complex tasks than others, but even a

Seaman is often given jobs in which impairment of judgment or reflexes could be disasterous. Handling live ammunition would be an example of this type of job. An individual in the Navy might, at times, be able to function mildly intoxicated, but it would be extremely unwise to recognize this fact in official policy.

Ethyl alcohol is not the only alcohol that can produce intoxication in an individual. Methyl alcohol (wood alcohol) can produce the same intoxicating effects on the body as ethyl alcohol, but it is oxidized at a much slower rate (approximately one-seventh as fast as ethyl alcohol). Methyl alcohol, like other alcohols, produces toxic substances upon oxidation. An oxidation product of methyl alcohol, for example, is formic acid, a substance which can cause blindness (32).

Tolerance is, in the physiological sense, "... the ability to ingest increasing amounts of a chemical without an increasing effect upon the organism..." (35, p. 19). It is generally believed that tolerance to alcohol consists, in some unknown proportions, of a combination of tissue tolerance and learned tolerance. Tissue tolerance is a desensitization to some of the effects of alcohol due to chemical or physiological changes in the body following prolonged periods of alcohol consumption. Learned tolerance is primarily psychological in origin and refers to the learned ability to suppress the effects of alcohol on mental, speech, perceptual, gait, and emotional functions (9, 35). It is

felt that learned tolerance plays the dominant role in overall tolerance to alcohol. In general, inexperienced drinkers tend to show more alcohol-related effects than do experienced drinkers for a given quantity consumed.

A marked decrease in tolerance has been found among some alcoholics in advanced stages of the disease. In these cases relatively small quantities of alcohol produce unusually strong effects. It has been suggested that the decrease in tolerance might, in these cases, be the result of malfunctions (due to damage by alcohol) of the liver, brain, or metabolism (9).

E. DISEASES AND DISORDERS COMMONLY RELATED TO ALCOHOLISM

During the past several years a great deal of research has been done concerning the physiological effects of alcohol. As a group, alcoholics suffer a plethora of diseases and disorders to a significantly greater extent than does the general population. This is not to suggest that alcohol by itself is the direct cause of these disorders, but rather that for the most part the disorders are secondary.

Most of the alcoholics' physical disorders are directly related to the state of malnutrition found in a large percentage of chronic alcoholics. Alcohol alone can supply the alcoholic with about one-third of his daily caloric intake need but these calories come without the nutritional benefit derived from food (14). Virtually all detoxification centers and rehabilitation centers, the Navy's included, emphasize proper diet and vitamin supplements as an integral

part of their program. It should be mentioned here that the disorders discussed in this section are found in a general population of civilian chronic alcoholics. According to Dr. Schuckit of the Navy Medical Neuropsychiatric Research Unit, the Navy alcoholics are generally in much better health than their civilian counterparts. (64). This can be hypothesized to be a result of frequent medical checkups and the abundance of nutritions food readily available.

In modern societies, alcoholic beverages are often used as appetizers. The gastric juices in the stomach are stimulated with low concentrations of alcohol. If the before dinner drink becomes drinks and the concentration in the stomach rises to between 40 and 50 percent, the mucous membranes of the stomach will become inflamed and gastritis will occur (15). Gastritis is perhaps the most common and the easiest to cure of the alcohol-related disorders. Generally, an individual with gastritis will experience a full feeling and pain. The cure for gastritis is rest, the right food, and no more alcohol (57).

Cirrhosis of the liver is probably the best known of the alcohol-related disorders. Through popular usage, cirrhosis has been closely identified with alcoholism although the disease is not limited to heavy drinkers. Cirrhosis has, in fact, been found among abstainers (14). There is presently no strong medical evidence that cirrhosis is actually a result of alcohol usage (14), although the disease is found among chronic alcoholics to a greater

extent than among the general population. A liver that has developed cirrhosis has had its healthy cells largely replaced by scar tissue which restricts or blocks the blood flow through it. The liver attracts much interest from an alcohol standpoint because it oxidizes about 90% of the alcohol that is taken internally. If the liver is frequently forced to oxidize large amounts of alcohol it will become enlarged, pale, and sore, but will return to its normal state within a few days after the alcohol has passed through the system (57).

Wernicke's disease and Korsakoff's psychosis are two of the more serious alcohol-related disorders. These disorders are secondary in nature in that they are a result of the state of malnutrition found among alcoholics. Clumsiness, a cloudy state of mind, and eyesight problems are typical symptoms of Wernicke's disease. Chances are also high that heart attack, fever, or major infection will occur in patients with this disorder (57). Korsakoff's psychosis exhibits itself through amnesia and impaired intelligence as a result of braing damage. Prognosis for both of these disorders is generally quite poor (14, 15, 57).

Aprroximately 10 to 20 percent of alcoholics develop a heart condition known as "beer heart" which is a result of insufficient vitamin B_1 in the diet (14). The symptoms of this disorder are an enlarged and weakened heart and occasional swelling in the legs. The condition received its name from the erroneous belief that it was caused by drinking large quantities of beer.

The lack of B vitamins in the typical alcoholic population's diet also leads to other frequently encountered disorders. Among these are alcohol neuritis, beriberi, and pellagra (57). Pain in the extremities, joints, and muscles are symptoms of neuritis. Symptoms of beriberi, a disease common in countries where the main food is polished rice, include mental deterioration, cramps, paralysis, and, in severe cases, heart failure. These symptoms are much the same as those encountered with polyneuropathy, a disease encountered in about 20 percent of the chronic alcoholics treated in hospitals (14). These diseases are cured with B vitamins and thiamine. Pellagra, a disease found in about 10 percent of chronic alcoholics is a result of insufficient niacin, a B-complex. Symptoms are reddening and spotting of the skin, upset stomach, and in some cases mental upsets.

Recent research has revealed a high (as compared to the general population) rate of color-blindness among alcoholics (69). Once again it is felt that the color-blindness among those not normally color-blind is a result of nutritional deficiencies as the disorder is often only temporary.

Although it is commonly believed that the presence of ulcers and the heavy use of alcohol are directly related, medical evidence indicates that in spite of the fact that alcohol in the stomach does in fact aggravate existing ulcers, there is no strong evidence supporting the theory that stomach ulcers are caused by the heavy use of alcohol (14).

A small number of individuals exposed to alcohol show signs of pathological intoxication, a disorder characterized by a severe and almost "maniacal"response to the ingestion of a relatively small amount of alcohol. The loss of the patient's ability to control himself has been theorized to be the result of the alcohol serving as a trigger-release mechanism.

Another disorder which is often associated with alcoholism consists of varices of the esophagus and cardiac end of the stomach. Symptoms include signs of shock or internal hemorrhage, low blood count, and pallor. This disorder affects relatively few alcoholics.

Alcohol's effect on the reproductive system is still not known conclusively and is still under investigation. Although no medical evidence suggests permanent damage, it is frightening to consider the fact that the alcohol blood level in a fetus is roughly the same as in the mother. Thus, if the mother is "stoned" so is the fetus. Alcohol has long been thought to be an aphrodisiac when in fact this is not the case. As has been discussed previously, alcohol in low concentrations does tend to relax inhibitions normally present, but, as the alcohol level increases in the bloodstream, the ability to successfully perform the sex act shows a corresponding decrease (15).

Two related disorders about which a great deal of study has been directed are hallucinosis and delirium tremens (D.T.'s). Both of these can be a result of alcohol

withdrawal in chronic alcoholics. Hallucinosis, a disorder less severe than delerium tremens, usually consists of auditory hallucinations, although visual hallucinations also sometimes occur, generally after detoxification (15). Delerium tremens is a frightening disorder about which much anti-alcoholism publicity has been directed. Films showing individuals going through D.T.'s are favorite "scare tactics" of many groups in the business of rehabilitating alcoholics. The victim usually shows severe tremors, dilated pupils, subnormal temperatures, flushed skin, and occasional minute petechial hemorrhages of the brain. Electroencephalograms may be abnormal during the seizures but return to normal afterwards. Hallucinations are especially vivid and consist of grotesque animals and insects surrounding and crawling on the patient. Fortunately, once the seizures have passed they do not return until another cycle of drinking has been completed (9, 14, 15).

Unfortunately, many of the effects of alcohol use go beyond the boundaries of the individual's own body. The relationships an individual has with his family, friends, and society change as his behavior and thoughts become influenced by alcohol. Some of these non-physiological aspects of alcohol use will be discussed in the following section.

IV. SOCIAL AND PSYCHOLOGICAL ASPECTS OF ALCOHOL ABUSE

A. CULTURAL FACTORS

The incidence of alcoholism varies to a large degree among national and cultural groups. Although many hypotheses have been issued to explain the reasons for these differences, there is still little in the way of concrete evidence lending total support to a particular one. A study conducted in New York City found that of the alcoholics studied, 40 percent were Irish, one percent were Italian, and on a statistical basis, zero percent were Jews. The population of New York at the time was composed of 10 percent Irish, 15 percent Italian, and 25 percent Jewish (43). A similar study with similar results conducted in California showed 21 percent of the alcoholics were Irish, two percent Italian and 0.6 percent were Jewish (72). Virtually all studies recording cultural or religious characteristics of alcoholic individuals show Jews to have consistently lower rates of alcoholism than any other major group in the United States.

The low rate of alcoholism among Jews has been hypothesized to be a result of the role of drinking as a part of a religious ritual which, because of sacred associations, does not lend itself to becoming abusive in its use (35). It is interesting to note that among Jews a high percentage are drinkers. There are no official temperance or prohibitionary movements within the Jewish Community. This may change if

statistics about second generation Jews can serve as predictors of a changing pattern. It has been found that among second generation and Reform Jews there has been a gradual increase in the rate of alcoholism (70).

Attitudes toward drinking among cultures, sub-cultures, and groups can generally be categorized as expressing either total abstinence, ambivalence, permissiveness, or total permissiveness (9). In general, only in those groups in which total abstinence is the prevailing attitude is alcoholism rare. The magnitude of the problem means to increase as the attitudes become more permissive (9).

The Navy could be considered a sub-culture in which the attitudes toward drinking express permissiveness. It was reported previously that 97 percent of the personnel in the Navy are drinkers. This high percentage might indicate that some Navy personnel are deviating from patterns expected on the basis of their background culture. It is doubtful that information regarding ethnic background of Navy personnel could be obtained without conducting a survey. This lack of information makes it impossible to determine the subcultural effect of the Navy on the drinking patterns of its members. It could be speculated that due to the general permissiveness that exists in the Navy toward drinking, some personnel are deviating from expected drinking patterns.

Religious background information is collected on all Navy alcoholic patients and while this information could

prove useful as a basis for comparison with civilian alcoholics it was not available to this writer at the time of this report.

B. A BURDEN ON SOCIETY AND THE NAVY

Alcohol abuse and its effects constitute a major burden to society and the Navy. For example, approximately half of the compulsive users of alcohol, a group representing about five percent of all alcohol users, can be characterized as having a serious decrement in social functioning (53). Some of the results of this decrement will be presented in this section.

The use of alcohol is present to an extraordinarily high degree in illegal activities. There is evidence suggesting that a close relationship exists between antisocial behavior and alcohol abuse; a relationship most marked in male alcoholics who begin their heavy drinking at an early age (63). Criminals, a group showing a high concentration of sociopaths, have a high tendency toward heavy drinking while alcoholics, in general, tend to engage in antisocial behavior (63, 66). A study of new male arrivals in California prisons reported that of the 2,325 men in the sample, 29 percent claimed alcohol as being a major problem in their lives and 28 percent claimed to be under the influence of alcohol when their crimes were committed. Of those who reported problems with alcohol, 50 percent were convicted for auto theft and over one-third

for sex offenses, assault, manslaughter, and forgery (59). One researcher found, when studying cases of criminal homicide, that in nearly two-thirds of the cases studied the victim or the offender or both had been drinking (76). Studies of felons have shown alcohol is a problem for over 60 percent of them (31, 68). One study reported 39 percent of the sexually agressive acts against women and 67 percent of those against children had alcohol as a factor (28). It is interesting to note that the victims of alcohol-related violent crimes are most often relatives or friends of the alcoholic (44, 68, 75, 76).

The public danger of drunk drivers has received much publicity but is not diminishing. Recent research has shown that of fatally injured drivers across the country, 60 percent had blood-alcohol levels at least 0.05 percent and of these more than 35 percent had blood-alcohol levels of 0.15 percent or greater (10, 48). Costs associated with alcohol-related automobile accidents, in terms of property damage, insurance costs, and medical services, amounted to an estimated one billion dollars in 1971 (53). Other estimates have placed this cost as high as 1.8 billion dollars annually (74).

Alcoholics are seven times as likely to be victims of fatal accidents than are non-alcoholics (71). A study of non-fatal accidents showed victims with positive blood-alcohol levels in 22 percent of home accident victims, 30 percent of transportation accident victims, and over 15 percent of on-the-job accidents (77).

It has been estimated that of those families on welfare, approximately one-third have an alcohol abusing member (62). In addition to providing direct financial aid to these individuals, approximately 380 million dollars is spent annually at the federal and state levels in connection with treatment of alcoholics. In addition, approximately 100 million dollars is spent annually for legal processing of alcoholics (53).

It is this writer's opinion that due to the social emphasis on drinking, Navy personnel have more opportunity and a greater tendency to drive while intoxicated than do most civilians. Probably the factor which prevents the Navy from having a notoriously high alcohol-related accident and arrest rate is the fact that when a ship is in a port other than its homeport, the vast majority of individuals use some form of public transportation to and from the local bars. Another factor is that many of the younger, single enlisted personnel who live aboard ship do not own cars and do much of their drinking on base. This means that much of their drinking takes place within walking distance from their "home". It is probable, although not statistically supported, that a large percentage of the minor violations of the Uniform Code of Military Justice are in some way alcohol-related. Examples of the types of violations affected are those involving unauthorized absence or missing ship's movement (departure). The full extent to which crimes and accidents by Navy personnel are alcohol-related

is not known, but it has been reported in Navy Times (April 11, 1973) that alcohol and alcohol-related problems cost the Navy an estimated 45 million dollars annually.

C. ALCOHOLISM AND THE FAMILY

Some 40 percent of the problems brought to family courts are alcohol-related either directly or indirectly (68). In general, it has been found that the liklihood of an intact marriage is reciprocally related to the degree of alcoholic involvement by one or both of the marriage partners. Much research has been conducted on the alcoholic-family relationship. One recent study found marital instability in over 40 percent of the families of alcoholics (26, 42, 60). The effect of alcoholism on the children of an alcoholic has been studied for several years. Estimates vary, but generally show that between 22 and 55 percent of the children of alcoholics have themselves become alcoholics (11, 48, 51, 67). In the case of an alcoholic father, as his alcoholism progresses, his status within the family declines (35). Job loss is not uncommon among alcoholics and when it happens his status is dropped even further, causing other members of the family to assume new responsibilities and roles (breadwinner, for example) which can understandably lead to conflict. If an alcoholic manages to stop drinking, other family conflicts can arise as he attempts to resume the roles he previously had. Often, in the case of a fragile marital relationship due to alcoholism,

the non-alcoholic wife will slowly begin to realize that she is fully capable of running the household and that things would run more smoothly and with greater security were she without the alcoholic husband (16).

The plight of the family of an alcoholic has drawn increasingly more attention from psychologists, sociologists, and others working with alcoholism. If it is assumed that, on the average, an alcoholic individual has three close family members then, using the National Council on Alcoholism's estimate of nine million American alcoholics, there are 36 million individuals who are in some way personally affected by alcoholism. This is about one out of every six individuals in this country.

Although specific information about the relationship between the family and the Navy alcoholic was not available for this report it is known that the divorce rate among Navy alcoholics is lower than that among non-Navy alcoholics (64). The cause for this is not clear. The importance of the family to alcoholic rehabilitation has been recognized by rehabilitators among both civilians and the Navy. The role of the family in the rehabilitation of Navy alcoholics will be discussed later. It is generally recognized that patience and understanding by the family of an alcoholic are essential for rehabilitation success.

D. PSYCHOLOGICAL ASPECTS OF ALCOHOLISM

Of all male admissions to state mental hospitals, 40 percent are alcoholics (54). The suicide rate of alcoholics

is about 58 times that of non-alcoholics and about 31 percent of those committing suicide are alcoholics (54). Sociopathy is often closely associated with alcoholism because of the tendency of alcoholics to engage in anti-social behavior and the tendency of sociopaths to engage in heavy drinking; however, not all alcoholics can be considered as sociopaths, even though they may generally engage in antisocial behavior (63, 66). An extremely poor prognosis exists for the alcoholic who is also a true sociopath and a relatively good prognosis for those who exhibit fairly stable marital and job histories and for those who show low tendencies to exhibit hostility and aggressive behavior (58, 63, 78).

A number of psychological disorders are frequently encountered among alcoholics. Table 4-1 lists drives, defenses, and personality characteristics often found among alcoholics (35 p. 47).

Many research efforts have been directed toward determining the correlation between anxiety and alcoholism. In an early study it was found that among primitive tribes, as the level of anxiety (generally produced by uncertainty about food supply and other basic requirements for life) increased so did the level of insobriety (36). These findings were checked about twenty years later with a similar study and the results were the same (12). A popular hypothesis of many psychiatrists is that alcoholism in many individuals, is a result of, or may be symptomatic of, an insecure, anxiety ridden individual who is unable to cope with the pressures he feels (49).

TABLE 4-1

SOME DRIVES, DEFENSES AND PERSONALITY CHARACTERISTICS OF ALCOHOLICS*

Stage of Development	Syndrome	Drive	Defense	Personality Characteristics
I	(Schizophrenia)	Narcissim, Need for omnipotence (Early Oral-Preoral)	Denial, Withdrawal, Turning against the self	Seclusiveness, Need for control, Egocentricity, Selfishness, Low self-esteem, Need for Security
II	(Manic-depressive)	Receptivity-passivity (oral)	Introjection Projection Denial Acting out	Complaining, Passive behavior, Masochism, Intolerance of tension, Primitive Sex behavior, Depression (rarely manic), All-or-none attitude, Acting, not thinking, Self punishment, Guilt feelings, Suspiciousness Blaming others, Clinging
III	(Obsessive-Compulsive)	Retention Power drive Rebellion-submission (anal)	Reaction-formation Undoing, Isolation Repression	"Appearance" of Love, Doubt and distrust, "Overconsiderateness", Inhibited behavior, Ruminative, Compulsive orderliness alternating with messiness, "Compliance", Need for control
IV	(Hysteria)	Development of sex goals and identity (phallic)	Repression Rationalization Regression	Pseudo-confidence, Masturbation conflicts, Overemphasis on sex

TABLE 4-1 (Cont'd)

Stage of Development	Syndrome	Drive	Defense	Personality Characteristics
				and masculinity, Impotence and Frigidity, Exhibitionism, Phobias
V		Resolution of relations with parents	Regression Repression	Incapacity for adequate: Marital adjustment Social adjustment Sexual adjustment Mature Love relationship
VI	Latency:	Problems more quiescent		
VII	Adolescence:	Upsurge of instinctual drives and renewed attempt to resolve new and old problems of previous stages.		

*Reference 35, p. 47.

The mothers of alcoholics have, some researchers believe, played a critical role in the formation of the alcoholic personality. Mothers of alcoholics tended to be deviant themselves in some way, they were denigrated by the fathers, they were escapists, and either passively affectionate or utterly rejecting (46).

In general, there is no specific characteristic found universally among alcoholics. Due to this, alcoholics should not be considered as representing a unique personality type (27, 35, 50).

Navy alcoholic patients are screened for possible disorders during routine psychiatric examinations, but the results of these examinations have not been summarized for all patients. Because of this, no specific information can be presented in this report on the psychological condition of Navy alcoholics. Personnel with severe psychological disorders would, however, not be found in the Navy's rehabilitation programs as these personnel are generally discharged from the service.

V. CHARACTERISTICS OF THE ENLISTED NAVY ALCOHOLIC

A. SOURCE OF INFORMATION

Incoming patients at Navy rehabilitation centers are asked to provide various background information on a standard form. The information provided by these questions is a potentially valuable source of data for statistical studies if the information could be readily retrieved by personnel working in the field. The completed forms are sent to a private firm under government contract for processing and distribution on a limited, weekly basis. The report distributed is called the ARC Patient Listing (it has no report symbol attached) and consists of two basic sections. The first section lists the patients currently undergoing treatment by name for a particular ARC or ARU and their background data. The second section gives more general information derived from the reports of all reporting centers and units. It consists of such things as a breakdown by rate (BM3, SM2, RDC, etc.) of the patients currently undergoing treatment at all centers and in addition such items as summary by age group, summary by security clearance, and others. It is from this second section that most of the information was obtained for this section of this report. Because of the highly personal nature of the information contained in the first section, personnel within the hierarchy are reluctant to let an outsider see or use the information.

Due to the small amount of data available on the alcoholic officers, they have been generally excluded from this report. This should not be considered as an indication that there is no alcohol problem among officers, but rather that as a result of the newness of the Navy's rehabilitation program, insufficient data has been generated for inclusion in this report.

B. PER CAPITA CONSUMPTION

Data on the Navy's per capita consumption of alcoholic beverages was not available at the time of this writing. One might falsely conclude that sales of Navy liquor stores might give a good indication of per capita consumption. The difficulty with using sales is that Navy liquor stores sell to Army and Air Force personnel, retired personnel, and to some reservists. Even though receipts are made out with the name, rank, serial number, and branch of service of the purchaser, these are not summarized in report form. In addition, Navy personnel are free to patronize other military and civilian liquor stores. The quantities purchased through these outlets could not possibly be determined accurately.

C. AGE

Of some 291 patients undergoing treatment at alcoholic rehabilitation facilities, there were personnel within every four year ago group between the ages of 17 and 52 (17-20, 21-24, 25-28, etc. are the age groups) with the younger age

groups (through age 32) being occupied by enlisted personnel. As of June 1972 the mean age for enlisted personnel undergoing treatment was 33.6 years and for officers the average age was 42.5 years. Figure 5-1 shows the breakdown of the sample by the age group of enlisted personnel.

In order to investigate the possibility of certain groups being statistically out of proportion to their strength in the Navy as a whole, information supplied by the Bureau of Naval Personnel (20) was modified in such a way as to be compatible with the information available in the Patient Listing. In both reports the number of personnel present in various age groups was presented, although the groups were divided differently. In order to graphically present the data, a decision was made to take the mean age represented by the age group, divide it by the number of years spanned by the group, and convert the result to a percentage of the enlisted alcoholic sample population or the enlisted total population. This result is used as a rough approximation of the number of personnel of a certain age present in either the sample or the population. Figure 5-2 illustrates graphically the results.

It is immediately obvious, upon examining the figure, that in two areas the percentage of alcoholics by age differed quite noticeably from the percentage expected, if the distribution of alcoholics by age in the sample is assumed to follow a distribution in proportion to the number or percentage of personnel in the Navy enlisted

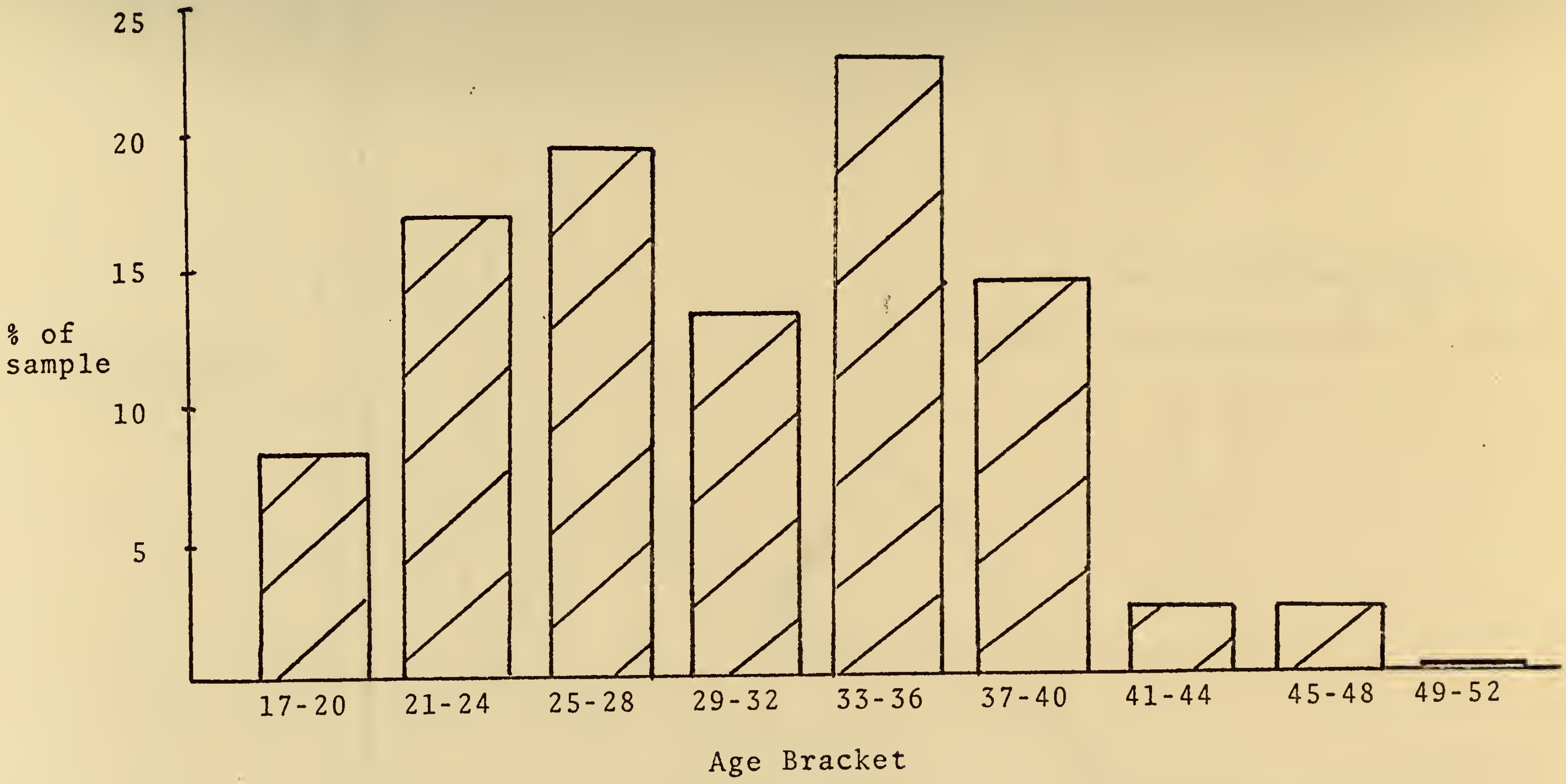


Figure 5-1 Distribution of Navy Alcoholic Sample By Age

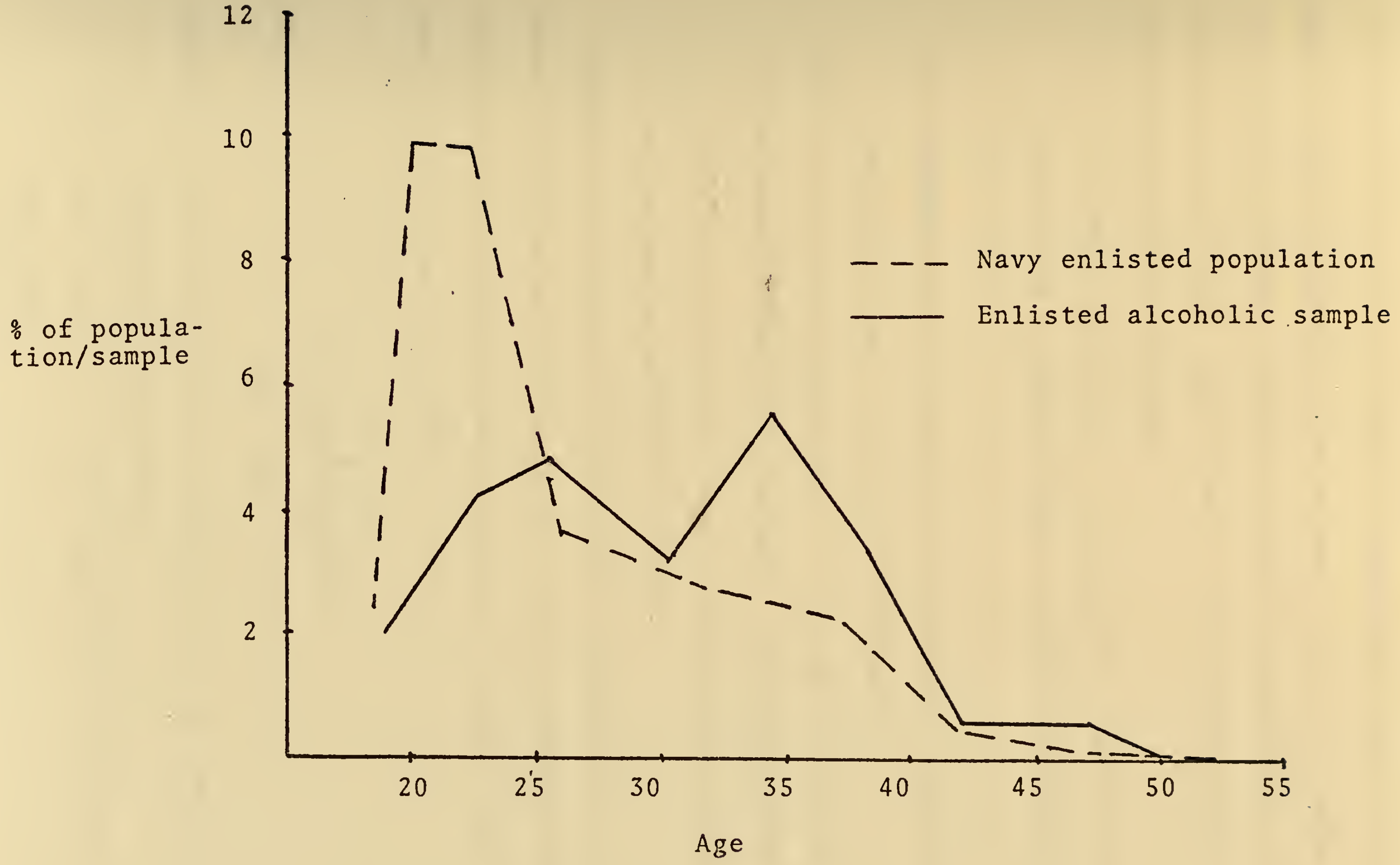


Figure 5-2 Distribution of Navy Enlisted Sample and Navy Enlisted Population by Age

population. Thus if the 20 year old group represents about 10 percent of the Navy enlisted population and if alcoholism shows no age preference, the 20 year olds in a random sample of alcoholics should represent about 10 percent of the sample. In order to test the significance of the differences certain gross assumptions were made:

1) The sample containing the alcoholics under treatment constituted a random sample of the alcoholics in the fleet.
2) Interpolation is possible between the discreet points identified (the curves are continuous).
3) The relative proportions of the age groups in the population remained constant. The population information was as of June 30, 1972 while the sample information was as of March 7, 1973.

Admittedly these are rather gross assumptions, but in order to help allow for error the rather stringent significance level of $\alpha = 0.01$ was employed. The test statistic used is as follows (17, 47):

$$Z = \frac{P_s - P_p}{\sqrt{\frac{P_p Q_p}{n}}}$$

Where P_s = the fraction of alcoholics in the sample for a particular age group.

P_p = the fraction of the population occupied by the age group.

$Q_p = 1 - P_p$

n = size of the sample = 275.

The rejection region used was that region where $|Z| \geq 2.58$.

The results indicate that the age groups between about 20 and 25 ($Z \approx -3.1$) are significantly underrepresented in the alcoholic sample and that the age groups between about 33 and 38 ($Z \approx 3.3$) are probably overrepresented in the sample if the distribution of the enlisted population is used to model the distribution of the alcoholic population.

The distribution observed is not surprising if one accepts the idea that the normal alcoholism pattern consists of a gradual progression of the disease over a 10 to 15 year period of heavy drinking. Attempts are made by recruiters to screen out applicants who show signs of alcohol dependency. Thus, it may be hypothesized that heavy drinking behavior by a potential alcoholic probably starts after he enters the service. This may also be assumed to be the result of the legal nonavailability of alcoholic beverages, due to minimum age restrictions, for anything over a short period of time prior to the time of entry into the Navy for most individuals. During fiscal year 1972 approximately 81 percent of the first-term male enlisted personnel enlisted between the ages of 18 and 20 (20). This would indicate that, in most cases, alcoholism would not become acute in an individual until sometime between the ages of 28 and 35 at the earliest. This also leads to a possible explanation of the relatively high percentage of alcoholics in the 33 to 38

group. An individual who has followed a "normal" or "typical" alcoholic pattern of drinking will very likely fall in the 33 to 38 year-old group when first diagnosed an alcoholic. This is based on the assumption he starts drinking heavily shortly after he joins the Navy.

Gunderson and Schukit (19), using data drawn from Navy-wide psychiatric inpatient files for the period July 1965 through June 1969, predicted rates of alcoholic incidence as a function of age. The rate of incidence was not the general rate of incidence, but rather the incidence based on rates of first hospitalization of individuals for alcoholism. They found that the incidence of alcoholism increased with age, reaching a peak between the 33 and 45 year old age groups. They also found that during the period of time studied, the average Navy enlisted alcoholic was 33 years old, which appears to be in close agreement with the average based on the sample obtained from the ARC Patient Listing.

The information presented thus far in this section has largely been related to the alcoholic in the Navy. Unfortunately, there is little data available on the drinking practices of the non-alcoholics in the Navy. This information, if available, could be contrasted with that provided for the general population in chapter two of this report. It is apparent from the data provided in Figures 2-2 and 5-2 that the majority of the personnel in the Navy should be consumers of alcohol, using age as the determining factor. It was reported previously that an estimated 97 percent of

the personnel in the Navy are alcohol consumers. This figure is much higher than would be indicated from the data presented in Figure 2-2. Some of the possible reasons for the high percentage of drinkers in the Navy have been discussed previously.

This writer was unable to find data for civilian alcoholics which would enable comparison with Navy alcoholics on the basis of age. If available, this information could be compared with that presented in Figure 5-2. It has been reported that the age distribution of Navy alcoholics is similar to that of civilian alcoholics. The major difference is that the Navy alcoholics appear to be slightly younger, in general, than their civilian counterparts (18, 64).

D. ALCOHOLICS AND EDUCATION LEVEL

Because of the incompatability of readily available statistics, meaningful comparisons of the education level attained by the Navy enlisted population and the enlisted alcoholics sample are difficult. Table 5-1 gives the education level of the enlisted alcoholic sample (22) and Table 5-2 gives the education levels of Navy enlisted personnel on active duty (20).

As can be seen by the format in which the data are presented, no meaningful comparisons can be made. Solely based on general appearances, nothing in Table 5-1 would indicate anything out of the ordinary when compared with the Navy general population (Table 5-2).

Table 5-1

Education Levels of Navy Enlisted

Alcoholic Sample

Education Level	Percent
01-08 Grammar	5.8
09-12 High School	82.5
13-16 College	9.1
17-20 Graduate School	2.5

Table 5-2

Education Levels of Navy Enlisted

Personnel on Active Duty

Education Level	Percent
Less than High School	12.7
High School	71.5
Less than 4 years College	13.6
Bachelor Degree or Higher	2.2

There is insufficient data available on Navy personnel to indicate any deviation from the drinking patterns, on an educational background basis, found in the civilian population. These were discussed in Chapter Two.

E. LENGTH OF SERVICE

Table 5-3 gives a breakdown of the alcoholic sample studied by years of service for enlisted personnel (the size of the officer sample was considered too small to be meaningful).

Table 5-3

Navy Enlisted Alcoholic Sample

Summary by Length of Service

Length of Service	Percent of Sample
0-2 Years	13.8
3-5 Years	16.7
6-8 Years	10.9
9-11 Years	9.8
12-14 Years	11.6
15-17 Years	17.2
18-20 Years	18.9
Over 20 Years	2.2

Because of the incompatability of available statistics with the data presented here (largely to the way in which the age groups are constructed), it is difficult to draw comparisons with the Navy enlisted population. General observations can be made from the data obtained from the sample. First, about 70 percent of the personnel in the sample could probably be classed as career personnel as they are past their initial obligated service. Second, it would appear that many alcoholics are being discharged without treatment. The age of an individual in the Navy is a fairly good predictor of his years of service. This would be done by taking the age of the individual and subtracting the average age of Navy personnel at first enlistment. The current average age is about 19 years old (20). By comparing Figure 5-2 and Table 5-3 it can be seen that a higher

than expected (based on population strength) number of alcoholics have between about 15 and 20 years of service. During the retirment years (39-49 years of age or 20-30 years of service) there appears to be no significant difference between the expected and actual number of alcoholics. Since alcoholism is known to be a progressive illness and the Navy's rehabilitation program is not directed at any particular age group, it can probably be assumed that a large number of alcoholics are being discharged untreated.

A question that might be asked is how many alcoholics are retiring from the Navy and at the time of their separation were they known alcoholics by their commands? It might be that those close to retirement are shielded by their seniors for fear that disclosure might adversely affect some aspect of their retirement plans. If this is the case, then those doing the shielding also have the unpleasant task of having others in the command assume many of the alcoholic's professional responsibilities in addition to their own.

It was mentioned in Chapter Two that in the civilian workforce over 90 percent of the alcoholics have between 10 and 20 years of service. From Table 5-1 it can be seen that only about 50 percent of the Navy alcoholics have as many years of service. The reason or reasons for the difference is not known. Individuals, in the Navy, with between 10 and 20 years of service, generally hold jobs which are supervisory in nature. In addition, Navy

personnel with this many years of service are held in high esteem by the Navy due to the assumed experience they bring with them to the job. It is this writer's opinion that alcoholic rehabilitation is still regarded as something done _to_ and not _for_ an individual. If this is the case, it may very well be that senior members of the Navy are "protected" from alcoholic rehabilitation by well-meaning seniors and subordinates alike.

F. JOB TYPE AND ALCOHOLISM

Because there is a general lack of knowledge about the causes of alcoholism, researchers are looking at all aspects of an alcoholic's life. The study of the types of jobs held by alcoholics in civilian life has drawn considerable attention by researchers. It has been shown, for example, that agricultural occupations show low rates of alcoholism (8, 24) while jobs with high rates of alcoholism are characteristically urban and relatively unskilled (20). In recent years the Department of the Navy has begun to show interest by sponsoring a limited amount of research in this area (20).

In this report an effort was made to determine which job types or ratings in the Navy tend to show among their personnel significantly high or significantly low rates of alcoholism. The ARC Patient Listing was used as a source of ratings among a group of 202 recent Navy alcoholic patients undergoing treatment at Navy rehabilitation facilities across the country. Officer and Marine Corps

personnel were excluded from the sample due to the possible uniqueness of those groups. The personnel strengths of the ratings studied was obtained from Ref. (21).

The percentage of enlisted alcoholics in the sample from a particular rating was statistically compared with the percentage of total enlisted personnel found in that rating. The number of enlisted personnel in the Navy and in the alcoholic sample for various ratings, as well as the percentage of total Navy enlisted population or total enlisted alcoholic sample represented by the ratings are presented in Table 5-4. The information from this table was used as the basis for determining whether or not the ratings showed a significantly higher or lower tendency toward alcoholism than would be expected if alcoholism is assumed uniformly distributed throughout all ratings. The hypothesis to be rejected was that there was a uniform distribution of alcoholics among all ratings. The percentage of alcoholics in the sample was compared with the percentage of alcoholics based on the total population and this was tested for significant difference at the $\alpha=0.15$ and the $\alpha=0.01$ levels of significance. Table 5-5 provides the results. The test statistic employed for this comparison is presented in Appendix A for reference.

In addition to the values of the "Z" test statistic, Table 5-5 indicates whether or not (yes/no) a significant alcoholic tendency exists for a particular rating. It

Table 5-4

Number and Percent of Navy Enlisted Personnel and Enlisted Alcoholic Sample Personnel By Rating

Rating	Number of Enlisted Personnel in Rating	% of Enlisted Personnel in Rating	No. of Alcoholics in Sample by Rating	% of Alcoholic Sample in Rating
		Deck Group		
BM	10428	2.02	14	6.76
QM	4770	0.92	3	1.45
SM	3935	0.76	3	1.45
RD	7385	1.43	1	0.48
ST	6301	1.22	1	0.48
OT	1065	0.21	1	0.48
		Ordnance Group		
TM	4849	0.94	0	0
GM	7894	1.53	8	3.86
FT	9209	1.78	1	0.48
MT	1384	0.27	1	0.48

Table 5-4 (Cont'd)

Rating	Number of Enlisted Personnel in Rating	% of Enlisted Personnel in Rating	No. of Alcoholics in Sample by Rating	% of Alcoholic Sample in Rating
		Electronics Group		
ET	21455	4.16	1	0.48
DS	1695	0.33	0	0
		Precision Equip. Group		
DM	452	0.09	1	0.48
		Admin. and Clerical Group		
RM	21815	4.23	6	2.90
CT	12931	2.50	0	0
YN	12431	2.41	5	2.42
PN	7525	1.46	6	2.90
DP	3351	0.65	1	0.48
SK	10050	1.95	6	2.90
DK	2201	0.43	2	0.97
CS	9467	1.83	13	6.28

Table 5-4 (Cont'd)

Rating	Number of Enlisted Personnel in Rating	% of Enlisted Personnel in Rating	No. of Alcoholics in Sample by Rating	% of Alcoholic Sample in Rating
SH	4403	0.85	3	1.45
JO	570	0.11	1	0.48
		Non-Rated (SN)		
SN/SA/SR	74237	14.39	18	8.70
		Engineering and Hull Group		
MM	21239	4.12	11	5.31
EN	9207	1.78	9	4.35
MR	2592	0.50	1	0.48
BT	10960	2.12	12	5.80
EM	12491	2.42	7	3.38
IC	4960	0.96	2	0.97
HT	10803	2.09	4	1.93
		Non-Rated (FN)		
FN/FA/FR	28338	5.49	1	0.48

Table 5-4 (Cont'd)

Rating	Number of Enlisted Personnel in Rating	% of Enlisted Personnel in Rating	No. of Alcoholics in Sample by Rating	% of Alcoholics Sample in Rating
		Construction Group		
CE	1384	0.27	1	0.48
EO	2507	0.49	4	1.93
CM	1564	0.30	0	0
BU	2250	0.44	1	0.48
		Non-Rated (CN)		
CN/CA/CR	1962	0.38	0	0
		Aviation Group		
AD	15468	3.00	8	3.86
AT	11535	2.24	0	0
AW	2381	0.46	3	1.45
AO	5632	1.09	7	3.38
AQ	3887	0.75	0	0
AC	2713	0.53	0	0

Table 5-4 (Cont'd)

Rating	Number of Enlisted Personnel in Rating	% of Enlisted Personnel in Rating	No. of Alcoholics in Sample by Rating	% of Alcoholics Sample in Rating
AB	4643	0.90	3	1.45
AE	8359	1.62	0	0
AM	15372	2.98	3	1.45
PR	1923	0.37	2	0.97
AG	1711	0.33	3	1.45
TD	1979	0.38	1	0.48
AK	3813	0.74	2	0.97
AZ	3113	0.60	2	0.97
AS	2188	0.42	3	1.45
PH	2318	0.45	0	0
		Non-Rated (AN)		
AN/AA/AR	27714	5.37	3	1.45
		Medical Group		
HM	24424	4.73	12	5.80

Table 5-4 (Cont'd)

Rating	Number of Enlisted Personnel in Rating	% of Enlisted Personnel in Rating	No. of Alcoholics in Sample by Rating	% of Alcoholics Sample in Rating
		Dental Group		
DT	3340	0.65	1	0.48
		Steward Group		
SD	11884	2.30	0	0

Table 5-5

Values of "Z" and Associated Levels of Significance of Alcoholic Tendency for Navy Enlisted Ratings

		Significant Alcoholic Tendency at Confidence Level:		
Rating	"Z"	$\alpha = .05$	$\alpha = .01$	High/Low Alcoholic Tendency
		Deck Group		
BM	4.84	Yes	Yes	High
QM	0.80	No	No	
SM	1.13	No	No	
RD	-1.23	No	No	
ST	-0.97	No	No	
OT	0.84	No	No	
		Ordnance Group		
TM	-1.40	No	No	
GM	2.74	Yes	Yes	High
FT	1.41	No	No	
MT	0.58	No	No	
		Electronics Group		
ET	-2.64	Yes	Yes	Low
DS	-0.83	No	No	
		Precision Equip. Group		
DM	1.86	No	No	

Table 5-5 (Cont'd)

Rating	"Z"	α =.05	α =.01	High/Low Alcoholic Tendency
Admin. and Clerical Group				
RM	0.95	No	No	
CT	-2.27	Yes	No	Low
YN	0.01	No	No	
PN	1.73	No	No	
DP	-0.31	No	No	
SK	0.99	No	No	
DK	1.20	No	No	
CS	4.78	Yes	Yes	High
SH	0.94	No	No	
JO	0.51	No	No	
Non-Rated (SN)				
SN/SA/SR	-2.33	Yes	No	Low
Engineering and Hull Group				
MM	0.86	No	No	
EN	2.79	Yes	Yes	High
MR	-0.04	No	No	
BT	3.68	Yes	Yes	High
EM	0.90	No	No	
IC	0.01	No	No	
HT	0.16	No	No	

Table 5-5 (Cont'd)

Rating	"Z"	$\alpha = .05$	$\alpha = .01$	High/Low Alcoholic Tendency
		Non-Rated (FN)		
FN/FA/FR	-3.13	Yes	Yes	Low
		Construction Group		
CE	0.58	No	No	
EO	3.00	Yes	Yes	High
CM	0.79	No	No	
BU	0.09	No	No	
		Non-Rated (CN)		
CN/CA/CR	0.88	No	No	
		Aviation Group		
AD	0.73	No	No	
AT	-2.17	Yes	No	Low
AW	2.11	Yes	No	High
AO	3.14	Yes	Yes	High
AQ	-1.25	No	No	
AC	-1.06	No	No	
AB	0.88	No	No	
AE	-1.84	No	No	
AM	-1.30	No	No	
PR	1.43	No	No	
AG	2.80	Yes	Yes	High
TD	0.23	No	No	

Table 5-5 (Cont'd)

Rating	"Z"	$\alpha = .05$	$\alpha = .01$	High/Low Alcoholic Tendency
AK	0.39	No	No	
AZ	0.69	No	No	
AS	2.29	Yes	No	High
PH	0.98	No	No	
Non-Rated (AN)				
AN/AA/AR	-2.51	Yes	No	Low
Medical Group				
HM	0.72	No	No	
Dental Group				
DT	0.30	No	No	
Steward Group				
SD	-2.09	Yes	No	Low

also shows whether the tendency (if it exists) is either high or low. It is apparent from the table that the tested hypothesis can be rejected. Some rating show a higher than expected degree of alcoholism, while in some other ratings the reversal is true.

The ratings chosen for study were all ratings which were represented in the alcoholic sample. In addition, those ratings not found in the sample, but with a population of at least 1000 Petty Officers were also included. Those ratings which were not represented in the sample and which had fewer than 1000 Petty Officers would have shown no statistical significance and therefore were not included. Of the ratings studied, the total size was determined by including the number of designated strikers for a particular rating with the number of Petty Officers in that rating. Designated strikers are personnel in pay grades E-1, E-2, and E-3 who have been guaranteed (through the designator) the opportunity to work within a particular rating by virtue of a particular recruiting policy or some type of specialized training the individuals have received. Those personnel with general apprenticeship titles (SN, FN, AN) may be arbitrarily assigned to any one of a number of different ratings.

One rating, SD, which showed a low alcoholic tendency, should be viewed with special consideration. The vast majority of the stewards (SD's) in the Navy today are of Filipino origin and as a result any attempts to make

comparisons among ratings including the stewards would be made difficult. Very little is known about alcoholism within boundaries of Nationality, let alone from a universal standpoint. For these reasons Schuckit and Gunderson (20) did not include them in a study they did.

There are several reasons why no attempt was made for the purposes of this report to estimate the actual rates of alcoholism among the various ratings. First, the personnel strength statistics used (21) antedated the alcoholic statistics (22) by about three months which is about two rehabilitation cycles. It was assumed for the purposes of this report that although the absolute strengths of the various ratings changed during this period, the relative strengths remained constant enough to lend some meaning to the study conducted. Second, since all rehabilitation facilities are, and have been operating at capacity and this fact is not hidden, there is no way of knowing what percentage of suspected alcoholics are being sent for diagnosis, let alone treatment. Third, as personnel are becoming better educated about alcoholism, it would appear that an ever increasing percentage of "hidden" alcoholics will be recognized. Until the level of education reaches a state where the probability is low that an alcoholic will go undetected, it will be extremely difficult to make any kind of accurate estimates of the actual rates of alcoholism.

For the benefit of readers who may not be familiar with the Navy's rating structure the full names of those ratings

which showed some alcoholic significance are provided in Table 5-6. The full names may serve as an aid in determining the types of jobs performed by the ratings concerned. The table is divided into high and low alcoholic tendency groups using significance at $\alpha=.05$ as the basis for inclusion.

Schuckit and Gunderson (20) generally found high rates of alcoholism among the so called semi-skilled rating groups such as the Deck, Administrative and Clerical, and Construction groups and low rates of alcoholism among the more technically oriented groups. They examined three possible links between alcohol abuse and occupation, the first being that of a possible relationship between job dissatisfaction and rate of alcoholism. They found no correlation between the two. It was concluded by them that if, in fact, job dissatisfaction resulted in high rates of alcoholism, a positive correlation would exist.

The second possible link suggested was based on some evidence that alcoholics tended to concentrate in the high alcoholic risk jobs. Some common background factors between men in high alcoholic risk jobs and men in a general alcoholic population are low socioeconomics status, relatively low aptitude scores, relatively low levels of education, and a reasonably high correlation between the type of jobs held by their fathers.

The third link suggested by Schuckit and Gunderson (20) concerns the relationship between high rates of disciplinary

Table 5-6

Significantly High or Low Alcoholic Tendency
By Rating

High Alcoholic Tendency

Rating	Rating Title
BM	Boatswain's Mate
GM	Gunner's Mate
CS	Commissaryman (Cook)
EN	Engineman
BT	Boilerman
EO	Equipment Operator
AW	Aviation ASW Operator
AO	Aviation Ordnanceman
AG	Aerographer's Mate
AS	Aviation Support Equipment Technician

Low Alcoholic Tendency

Rating	Rating Title
ET	Electronics Technician
CT	Communications Technician
AT	Aviation Electronics Technician
SD	Steward
SN/SA/SR *	Seaman/Seaman Apprentice/ Seaman Recruit
FN/FA/FR *	Fireman/Fireman Apprentice/ Fireman Recruit
AN/AA/AR *	Airman/Airman Apprentice/ Airman Recruit

* General Apprenticeship Titles

problems and high rates of alcoholism. They pointed out that it might be realistic to assume that jobs to which men have disciplinary problems transferred or jobs which tolerate with relatively high degress of disciplinary problems would tend to show high concentrations of alcoholics. The researchers rejected these hypotheses because they are not representative of official Navy policy and there is little, if any, indication of this in Navy folklore.

G. PHYSIOLOGICAL, SOCIOLOGICAL, AND PSYCHOLOGICAL CHARACTERISTICS OF NAVY ALCOHOLICS

Statistical information on the physiological, sociological, and psychological characteristics of Navy alcoholics is collected on an individual basis, but was not available, in summary form, to this writer. The available information was very general in nature and has, for the most part, been presented earlier. For the sake of continuity, however, it will be reiterated again.

As has been mentioned previously, Navy alcoholics are in much better health than their civilian counterparts (64). They do not, as a rule, suffer from the alcohol-related nutritional diseases and disorders (Wernicke's disease, Korsakoff's psychosis, beriberi, pellagra, etc.) normally found in an alcoholic group. Navy personnel are required to have complete physical examinations at fairly regular intervals and most diseases and disorders would be discovered at a fairly early stage. Information was not available as to the relative frequencies of other diseases

and disorders. In spite of the general good health found among Navy alcoholics, proper diet with vitamin supplements are a part of the Navy's rehabilitation programs.

From a psychological standpoint, Navy alcoholics are also in much better shape than their civilian counterparts (64). Navy personnel probably come under much closer surveillance than do civilians. Because of this, psychological disorders are probably detected at an early stage. As was mentioned previously, personnel with serious psychological disorders are generally discharged through administrative channels. Also, individuals are screened for psychological disorders prior to entering the service. No statistical data on the frequency and types of psychological disorders found among Navy alcoholics was available for this report.

Navy alcoholics suffer many of the same sociological problems the civilian alcoholics do. There are some notable exceptions. It has been reported that as many as 50 percent of the civilian alcoholics have lost their jobs due to alcoholism (53). The Navy alcoholics still have their jobs. This job "intactness" is generally considered to be a major positive factor for the successful rehabilitation of alcoholics. In spite of the fact Navy alcoholics have their jobs, they still are not free of job problems. Most of the alcoholics in the Navy rehabilitation programs have been ordered to go by their commands.

Specific information about the family problems encountered by Navy alcoholics was not available for this report. It

was reported earlier, however, that the divorce rate among Navy alcoholics is lower than for civilian alcoholics. The reason for the difference is not known. It could be that the Navy alcoholic has more opportunities away from home to do his drinking.

H. TYPE OF DUTY

It might be suggested that alcoholism could be related to the type of duty encountered by Navy personnel. At present there is no evidence either supporting or rejecting this notion. Since the previous type of duty was available for a number of alcoholic patients it was decided to compare this information with that available for non-alcoholic Navy personnel. The duty assignments are presented in Table 5-7.

Table 5-7

Present or Previous Type of Duty for
Navy Enlisted Personnel and Enlisted
Alcoholic Patients by Percent Assigned

	Type Duty			
	Shore (%)			
Group	U. S.	Outside U. S.	Afloat (%)	Undetermined (%)
Overall Enlisted	40.7	8.9	50.4	
Alcoholic Enlisted	15	33.3	44.3	7.4

The data in Table 5-7 were tested in a manner similar to that used in section C (Comparisons by Age). Since the alcoholic sample had 7.4 percent undetermined, it was decided to utilize a level of significance of $\alpha = 0.01$.

The results indicate that there is no significant difference, at the tested level of significance, to indicate that the percent afloat observed in the sample is not the same as expected on the basis of the percent afloat in the population. There is a significant statistical difference in the remaining two categories. The percent of U. S. shore based personnel in the alcoholic sample was significantly lower ($Z \approx -8.68$) than the percent expected based on the overall enlisted U. S. shore based personnel. The outside U. S. personnel data indicate a reversal of the previous effect, in that a significantly higher percentage ($Z \approx 14.19$) of alcoholic patients came from shore duty outside the U. S. than would be expected on the basis of the overall enlisted assigned.

There is really no way of knowing whether the alcoholic sample is representative of the alcoholic population. This is due to the fact that not all identified alcoholics are assigned to a rehabilitation program. Because of this, one can only speculate as to factors that might result in higher or lower than expected concentrations of alcoholics in a particular duty status. A factor which could be contributory to the relatively low rate of alcoholics observed coming from U. S. shore bases might be the relative intactness of the family units of the personnel in this status. Most personnel on shore duty stateside have their families with them and are able to go home to them almost every night. Many of the overseas tours are classified as

unaccompanied tours in that the families are left behind. Again, only as speculation, this might result in a high degree of boredom among personnel in the overseas group who are faced with a choice of fewer non-drinking-related social activities. The possibility that certain individuals "predisposed" to alcoholism may be adversely affected by certain aspects of Naval life such as periods of boredom, family separation, inexpensive liquor, and a social milieu which encourages drinking has been proposed by certain researchers (65). As of now, there is little evidence of a statistical nature supporting such hypotheses, although they might serve as an interesting basis for future research in the field.

I. ALCOHOLICS AND SECURITY CLEARANCES

Although poor decisions and workmanship are generally attributed to alcoholics, there is no evidence that security violations have been directly attributed to alcoholism. Nevertheless, the subject of security is generally extremely sensitive and there is no reason to believe that an alcoholic's poor performance would not also be carried over into the area of National security. It is doubtful that an individual who has received a security clearance would intentionally commit a security violation, but he might inadvertently, through the use of incorrect procedures or through an inadvertent "slip of the tongue" while intoxicated. Table 5-8 gives a breakdown by percent of sample and security clearance involved of 270 recent alcoholic patients (22).

Table 5-8

Security Clearances of Navy Enlisted Alcoholic Patients

Security Clearance	Percent of Sample
Confidential	25.9
Secret	25.2
Top Secret	3.7
Above Top Secret	0.4
Reliability Program	1.9
Confidential/Reliability Program	0.7
Secret/Reliability Program	4.4
Top Secret Reliability Program	0.7
Above Top Secret/Reliability Program	0
None	37.0

Information regarding the numbers and types of clearances in the Navy as a whole is classified information. Because of this, no direct comparisons are possible here. It is, however, of some value to note seemingly high (63 percent) percentage of personnel in the sample with some type of security clearance. The possibility cannot be ruled out that there may be a disproportionally high number of alcoholic personnel with security clearances in rehabilitation programs. Behaviorally, personnel with security clearances generally come under closer observation by their seniors and their standards of behavior and performance are generally more strict than in the Navy as a whole. The result could be that there is less tendency to "cover" for poor

performers than may be generally the case. These hypotheses are not supported statistically at the present time, but could serve as the basis for future studies in the area.

Until now, much has been said about alcoholism and the characteristics of both Navy and civilian alcoholics, but little has been mentioned about the actual treatment of alcoholics. In the following chapters a look will be taken at some of the organizations, the Navy included, which are attempting to control alcoholism.

VI. ALCOHOL-RELATED GROUPS AND ORGANIZATIONS

A. ALCOHOLICS ANONYMOUS

Alcoholics Anonymous is the largest organization in the world dedicated to the rehabilitation of alcoholics. It currently has a membership of over 400,000 in the United States and has groups in virtually every town of any significant size (54). The organization has received endorsements from a wide range of organizations, including the American Medical Association which stated that A. A. was one of the most successful organizations in helping alcoholics (9). A. A. is a non-profit organization which is not allied with any religious or political group and prefers not to endorse or oppose causes. The stated purpose of the members of A. A. is to remain sober and to help other alcoholics achieve sobriety (4). The only requirement for membership is a desire to stop drinking.

A new member of A. A. is generally assigned a sponsor who is responsible for providing encouragement and help to the new member. He shows, by using himself and his drinking history as an example, what A. A. has meant to him (6). Anonymity also plays an important role in A.A. Members are allowed to maintain the level of anonymity they wish and use only first names when speaking as an A. A. member to outside groups. Members must also respect the right of others to maintain their anonymity (7). Vital to A. A. is

the belief that all members are equal. Anonymity has helped meet this need. The core of the A. A. program is embodied in the "Twelve Steps" and "Twelve Traditions". These have been placed in Appendix B for information.

As might be expected, A. A. has come under attacks from certain members of the professional community due to A. A.'s general tendency not to focus on the underlying psychological difficulties of the alcoholic and the prevailing "takes one to know one" attitude among A. A. members (25). This attitude implies, of course, that non-alcoholics cannot be trained to work effectively with alcoholics. Conflict with A. A. has also from time to time arisen out of the heavy religious overtones of A. A. and to A. A.'s general aversion to any kind of drug therapy for fear of a new addiction (25). In spite of the criticism directed at A. A., it is still generally thought of as the best tool for alcoholism treatment.

Alcoholics Anonymous is relied on heavily in the Navy's rehabilitation program. This will be discussed in greater detail in the following chapter of this report.

B. AL-ANON

Al-Anon, founded in 1954, is an organization composed largely of relatives of alcoholics and is established through more than 6000 groups in over 50 countries (1). It was set up on the premise that alcoholism is a family disease which severely affects many individuals besides the alcoholic himself. Although it has close social ties with Alcoholics

Anonymous, it is not affiliated in any way with A. A. nor any other organization. Basic to the philosophy of Al-Anon is the statement "Only a person who has lived with an alcoholic and has experienced the mental anguish that goes with it can understand the problem of the alcoholic's mate" (2).

Education of the member in the area of alcoholism is one of the primary goals of Al-Anon. In addition to printed materials from various agencies the groups are often provided with speakers who are knowledgeable in a particular facet of the field. Although direct counseling, in terms of legal matters, finances, divorce, etc. is not given, referrals are made to professional sources of help. Group therapy is heavily relied upon wherein members relate their problems and/or solutions to problems for the benefit of themselves and other members. Al-Anon claims to be "spiritual", not "religious" and promises not to intrude on the religious beliefs - or lack of them of its members. Members must, however, believe in a Higher Power which can take virtually any form the member chooses (Nature, for example). In spite of their disclaimers, their literature and meetings do have religious (to most people) overtones and there are those who are offended by such things. Nevertheless, the group is highly regarded in the field and is continuing to grow.

Al-Anon, like Alcoholics Anonymous, has proven to be a useful tool in the rehabilitation of Navy alcoholics. Family members of Navy alcoholics are encouraged to join.

C. ALATEEN

Alateen, an outgrowth of Al-Anon, was started in California in 1957 and is directed towards serving those in the 12 to 20 age group whose lives have been affected by a close friend or relative who is an alcoholic (primarily alcoholic parents). Alateen serves to help members learn effective ways of coping with their problems through discussions, exchanges of experiences, and encouragement and attempts to educate its members about alcoholism (3). Discussions are frequently led by ministers, doctors, and Alcoholics Anonymous members.

Although it is not stressed as heavily as Al-Anon, membership in Alateen is encouraged by the Navy for children of Navy alcoholics.

D. NATIONAL COUNCIL ON ALCOHOLISM

The National Council on Alcoholism is the major alcoholism-oriented organization in the United States which is not physically engaged in the treatment and rehabilitation of alcoholics. NCA is a national voluntary health agency founded to combat alcoholism with little if any overlapping of services between NCA and any other organization or group. The primary role of NCA is that of educating the general public about alcoholism and serving as a kind of referral service for individuals needing help or information. NCA also lobbies vigorously at the national, state, and local levels for alcohol-related programs. Most of the general statistics

in the field of alcoholism are generated by the National Council on Alcoholism and it maintains what is probably the most complete library devoted strictly to alcoholism.

E. OTHER ORGANIZATIONS AND GROUPS

In addition to the groups already discussed there are a number of organizations, primarily operating at the state and local levels, which cater to various needs and provide a wide range of services to the alcoholic. The services provided run the range from detoxification centers at general hospitals to rehabilitation and temporary lodging at half-way houses.

A fairly new type of organization is the out-patient alcoholism clinic. Typical of these is the Acute Alcoholism Treatment Center in San Francisco. It first started in 1961 for the purpose of providing detoxification and treatment for the emergency patient and long term professional guidance to help the alcoholic control the disease. It is of interest to note that at the center is an A. A. representative to whom patients are referred for membership. The program at the clinic consists of medical treatment (vitamin supplements and tranquilizers), professional counseling, and advice on proper diet (38).

Most major companies today have programs aimed at helping the alcoholics within their work force. The companies train managers and supervisors in the study of alcoholism and attempt to make them aware of the symptoms of the disease so that the alcoholics can be identified at an early

stage. The programs are operated as a medical program and attempts are made to ensure managers and supervisors treat it as such. Industrial alcohol programs do not, as a rule, have provisions for "in house" treatment of alcoholic employees, but do refer the alcoholics to other organizations for help. It has been found that the order of referral is usually Alcoholics Anonymous, National Council on Alcoholism (for further referral), private physicians, alcoholism clinics, and religious groups (35).

F. MEASURING SUCCESS OF ALCOHOL-RELATED ORGANIZATIONS

Measuring the success of organizations and groups on a qualitative basis is extremely difficult in the area of alcoholism. The measure commonly used for those groups engaged in rehabilitation is the percent of alcoholics "rehabilitated". These rates are very important to the organizations because an organization whose program yields a low rate of rehabilitation will likely lose support (it must be remembered that most organizations in this area are publicly supported financially) in favor of an organization whose program appears to yield better results. The critical problem in determining rehabilitation rates is the lack of objective criteria for making the judgment. One question unanswered is after what period of sobriety can an alcoholic be considered rehabilitated? One study based on follow-ups of alcoholic patients who underwent clinical therapy in treatment found only 18 percent maintained total abstinence for

more than a year (29). Some other studies have not used abstinence as a criterion for rehabilitation but rather the subjective "improved". A study involving state hospitals found 60 percent of the patients improved at discharge, 39 percent between discharge and one year, and, 33 percent for periods over one year (50). The highest rehabilitation rates tend to be reported by industrial organizations, with reported rates of 60 to 70 percent not uncommon (35).

It is interesting to note that in one study it was found that of the alcoholics studied, three percent reverted to drinking normally on their own, seven percent quit completely on their own, three percent quit due to spiritual influence, and one percent quit on the basis of medical advice (41). This would indicate that a treatment program must show rehabilitation rates of better than 14 percent in order to begin to justify its existence. According to Dr. Marc Schuckit of the Navy's Neuropsychiatric Research Unit, these figures would be significantly higher for alcoholics in an organization like the Navy. The reason being that the Navy's administrative process has screened out those individuals, as might be found in a random sample, who have severe character disorders (sociopaths, for example). Also the prognosis for recovery is generally much better for individuals who have their jobs and families intact. According to Dr. Schuckit, the divorce rate among Navy alcoholics is significantly lower than for alcoholics in general (64).

The previous information has been included only for the purpose of illustrating the need for "casting a critical eye" on rehabilitation statistics. It appears most programs today are doing some good and therefore are able to justify their existence on a social, if not necessarily economical basis.

The rehabilitation success and the ways in which the success is measured of the Navy's programs will be discussed with the Navy's approach to alcoholism in the next chapter.

VII. THE NAVY'S APPROACH TO ALCOHOLISM

A. RECOGNITION OF THE PROBLEM

Although personnel in the Navy have long been aware of the existence of alcoholism among some of its members, a concentrated effort to deal with the problem has only recently begun. In September 1971 Public Law 92-129 was passed which dealt with the identification and treatment of drug and alcohol dependent personnel in the Armed Forces. Following this in March 1972 DOD Directive 1010.2 was issued to the services establishing DOD policies for prevention, treatment, and rehabilitating alcohol abusers and alcoholics. The previous two events led, in May 1972, to the Secretary of the Navy promulgating, through SECNAVINST 5300.20, the Navy policies on alcoholism and the establishment of responsibility for implementation of the policies. In the policy section of this instruction six significant areas were discussed, namely:

1. The Navy recognizes alcoholism as a disease which is preventable and treatable and that alcoholics are not to be considered physically unfit for military service on the basis of alcoholism.

2. Alcoholism, in itself, should not be considered as grounds for disciplinary action, although offenses committed while under the influence of alcohol may be subject to disciplinary action, depending on the circumstances.

3. Continuation on active duty or promotion opportunity will not be denied an individual on the basis of alcoholism, provided he has successfully regained his sobriety.

4. Rehabilitation programs should be designed in such a way as to involve the family of the alcoholic.

5. The Navy continues to recognize an individual's right to decide for himself whether or not to drink alcoholic beverages, so long as he does it legally and it does not affect his performance of duty or bring discredit to the Department of the Navy. The Navy further recognizes the need to provide all personnel with realistic information on alcohol and alcoholism.

6. The Department of the Navy has a responsibility for counseling its members concerning alcohol abuse and for attempting to rehabilitate those military and civilian personnel within the Navy who abuse alcohol or are alcoholics.

The SECNAV instruction defined alcoholism as psychological and/or physical dependency on alcohol. This definition is much less specific than the definitions offered in Chapter One of this report. Although the definition presented here appears simple,it is this writer's opinion that there are very few individuals in the Navy who understand what is meant by psychological and/or physical dependency. The instruction does have a section dealing with the identification of alcoholics. If the indicators of alcoholism presented are added to the definition the result is a fairly clear statement of what the Navy considers alcoholism to be.

From the Navy's viewpoint the indicators of alcoholism or potential alcoholism are, in addition to alcohol use, deteriorating performance, errors in judgment, periods of absenteeism, being unfit for duty (intoxication on duty), and increasing or repetitive alcohol-related entries into service records, personnel records, health records, or military police records. The definition of alcoholism offered by this writer was that it is a progressive, incurable illness characterized by psychological and/or physical addiction to alcohol and some decrement in personal, social, or occupational functioning. The only two areas of this definition not covered by the Secretary of the Navy were the incurability and progressive nature of the disease.

One statement in the policy section of the Secretary of the Navy's instruction might be questionable. Alcoholism was said to be preventable. It is true that an individual "predisposed" to alcoholism will not become an alcoholic if he does not drink. It is not true, however, that enough is known about alcoholism to enable those "predisposed" individuals to be identified before their drinking problems begin.

It is currently the responsibility of the Commanding Officer of a unit to determine those individuals in his command who are alcoholics. If there is doubt on his part he can send the individual to a Navy hospital for diagnosis.

Although the Secretary of the Navy's instruction launched a Navywide program for the treatment of alcoholism,

there were previously some active alcohol-related programs at the local level. Probably the first program in effect was at the Dispensary, Naval Station, Long Beach, where in January 1965 an Alcoholics Anonymous meeting was held on station for active duty personnel. This meeting was started at the suggestion of a retired Navy Commander who himself had been a drinking alcoholic. The size of the meeting continued to grow and as a result the first alcoholic rehabilitation center was begun at Long Beach during the summer of 1967 (79). Due to the success of the ARC (Alcoholic Rehabilitation Center) at Long Beach it has served as a model for the more recent ARC's and ARU's (Alcoholic Rehabilitation Units).

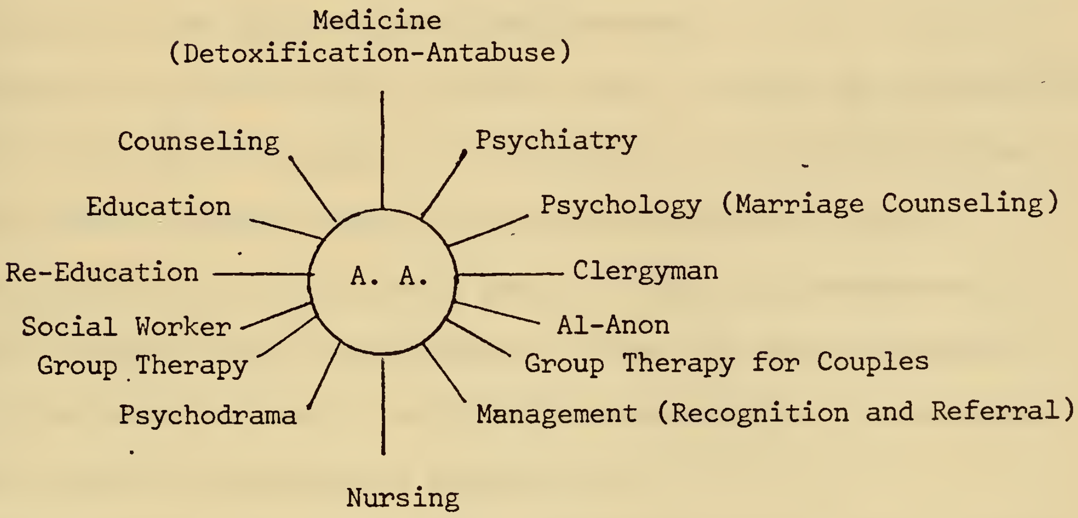
To treat alcoholic patients the Navy has started a series of treatment centers (ARC's and ARU's) around the country at major Naval and Marine installations. There are currently three ARC's in operation located at Long Beach, Great Lakes, and Norfolk. These are relatively large organizations with full time doctors and psychiatrists on the staff. The ARU's are much smaller in size and generally acquire professional help on an as needed basis from the hospital staff where they are located. ARU's are currently in operation or scheduled to commence operation at the following Naval hospitals: Bethesda, Boston, Bremerton, Camp Lejeune, Camp Pendleton, Charleston, Guantanoma Bay, Jacksonville, Memphis, Naples, Newport, Oakland, Philadelphia, and San Diego. The methods of treatment at the ARC's and ARU's will be discussed later.

B. TREATMENT

The methods of treatment of alcoholics within the Navy are by no means revolutionary. For the most part they are either in essence, or in fact, based on the Alcoholics Anonymous approach to alcoholism with some professional help added for good measure. The exact methods of treatment are left largely up to the head of the treatment facility. The methods of treatment used by the ARC Long Beach will be used here by way of example for treatment at ARC's.

The treatment program is in general a multidisciplinary program centered around Alcoholics Anonymous. This is illustrated in Figure 7-1 (79, p.5).

Figure 7-1
ARC Treatment Program



At the present time about 70 percent of the patients undergoing treatment have been ordered to go, and it is probably in this one area that the Navy's rehabilitation program differs from many others. Other programs do indeed

have a sizeable number of patients who have been coerced into going by their employers through loss of job threats, but civilian employers do not generally have the power over an individual to order him into a program. The Navy is also in the somewhat unique position of often being able to observe its personnel outside normal working hours. It is the hypothesis of this writer that the closeness of working life and social life found in the Navy have the potential for recognizing alcoholic tendencies in individuals at a very early stage in the progression of the disease. This is, of course, presumptive on the ability of the individuals with whom the alcoholic comes in daily contact to recognize alcoholism in its early stages. This does not exist at the present time in the Navy, but may exist at some future time as personnel are given needed information.

Potential patients for the ARC are, if need be, detoxified at the local Navy hospital. The process of detoxification is in this case oriented only in the physiological sense. Incoming patients are given a general physical examination as they may not have come directly from the detoxification ward. The new patients are also interviewed by a counselor who is himself a recovered alcoholic.

During the first two weeks of rehabilitation the patients are not allowed to go on liberty and are observed closely for signs of "sneaking" drinks. To help combat this possibility, the patients are put on an Antabuse (Disulfiram) program consisting of doses of 0.5 gm a day for the first five days

followed by 0.25 gm per day thereafter. The patients are required to take the antabuse in the presence of a staff member.

All patients at Long Beach are required to join A. A. and attend meetings daily including Saturday and Sunday. It should be pointed out that for non-Navy alcoholics, A.A. attendance is voluntary. The stated requirement for A.A., as was mentioned earlier, is a desire to stop drinking. It would seem that among a group of involuntary members there would be some individuals who simply do not have this desire. The effect, if any, their attitudes might have on the other members is not known. The meetings of various local non-Navy A. A. groups are attended by patients in order to give them a broader base of knowledge and understanding and to help them gain a greater appreciation for the universality of alcoholism. As an aside, it is interesting to note that in spite of the heavy reliance on A. A. by the Navy, there are no official financial ties. The Navy makes no financial contributions to A. A. at the local or national level. Written material distributed by A. A. is purchased from them for use by Navy personnel and onbase facilities are provided for meetings of military A. A. groups. As in all A. A. groups the "passing of the hat" takes place near the end of the meeting, but the resulting contributions are based on individual decision alone.

Group therapy plays a major role in the rehabilitation program not just at Long Beach, but at the other ARC's and

ARU's as well and consists largely of members of the group relating their "stories" for the benefit of the others. It is theorized that there are many commonalities in the normal progression of alcoholism and that through group therapy individuals may, through identification of common problems, be better able to understand their own problems. Although not expressed explicitly, the underlying message to this writer seems to be that if you drink again, certain unpleasant events will be inevitable and the only alternative is abstinence.

The group therapy sessions are generally conducted by a recovered alcoholic in the form of a counselor or a visiting A. A. member. The facilitator of the meetings have generally received some limited professional training in conducting group sessions. It could be argued by psychiatrists and psychologists that this is a potentially dangerous situation and that there is no substitute for true professionals when it comes to group therapy. The "takes one (alcoholic) to understand one (alcoholic)" philosophy of A. A., coupled with the limited resources in terms of funds and personnel available, preclude other alternatives at the present time. In researching the subject, this writer found no one who knew of a session getting so far out of control that the facilitator could not control it.

In addition to attendance at A. A. and group therapy meetings, the rehabilitation program consists of frequent discussions on topics related to alcoholism. These

discussions are generally conducted by doctors, psychiatrists, psychologists, and clergymen. Movies are also frequently shown and there are frequent individual counseling sessions. In order to better illustrate the activities taking place during rehabilitation, the schedule of events at the ARC Long Beach for the week of 19-25 March, 1973 is presented in Appendix C as a typical example.

As can be seen, the schedule is a full one and is designed in such a way that the alcoholic patients' waking hours are, for the most part, fully occupied by various alcohol-related events. The schedule is much the same every week although the topics covered are varied. The rehabilitation program is basically designed as a six week program and the current average stay for a patient is 44 days (22).

As the alcoholic rehabilitation program is still in its infancy, the methods of treatment are still largely in the formative stages, especially at the ARU's. ARU's are at a disadvantage as compared with the ARC's for a number of reasons, some of which will be discussed here using the ARU at Oak Knoll Naval Hospital in Oakland as a representative example.

The first disadvantage is the relative lack of seniority held by the officers-in-charge of the ARU's. The head of the Oak Knoll ARU is a Chief Petty Officer while the head of the ARC at Long Beach is a Navy Captain. This type of arrangement is largely due to the smaller patient load of the ARU's (about 20-25 percent that of the ARC's) and the

fact that the ARU's, at present, have no professional medical personnel on their staff. It is an accepted way of life in the military that seniority plays a major role in the bargaining power of an individual, especially when it comes to the allocation of already scarce resources.

A second disadvantage faced by the ARU's is, as has been previously pointed out, the lack of professional personnel attached permanently to the staff of the rehabilitation unit. At an ARU the services of such personnel are provided largely on an "as needed" basis which can result in doctors and psychiatrists who have only limited experience in the treatment of alcoholism seeing the patients. There seems also to be no permanent doctors and psychiatrists assigned even on an "as needed" basis, with the result being that patients will likely see the first available specialist who may not necessarily be the one who was seen previously or will be seen at a later time. In March 1973 this writer observed that the total permanent staff attached to the ARU at Oak Knoll consisted of the Chief Petty Officer in charge and one third-class (E-4) hospital corpsman. The Chief is himself a recovered alcoholic as are most of the personnel in the positions of responsibility in the Navy's rehabilitation program and has attended some formal schooling on alcoholic rehabilitation. The corpsman attached had received no specialized training and was picked by some method, not immediately obvious, from the hospital staff to work at the ARU. Staffing at this level quite obviously precludes any

"around the clock" setup whereby patients have access at all hours to someone knowledgable in the program. The result is that patients stand their own watches and it is pretty much the job of the stronger patients to take care of the weaker ones. As this particular ARU has only been in existence since August, there is no empirical evidence to support any hypotheses relating the rate of rehabilitation to the type of organizational setup. As the program ages and more data becomes available it may very well be that the Navy finds itself either understaffed at the ARU's or overstaffed at the ARC's. In spite of the fact that the ARU's, staffed as they are, may eventually be shown to produce satisfactory rehabilitation rates, the load placed on the individuals in charge simply astounding. They function as the officers in charge, counselor, and group thereapy facilitator. His job is made no easier by the red tape surrounding the use of volunteer help. At Oak Knoll, a prospective volunteer worker must apply through the local chapter of the Red Cross for status as a volunteer worker. If this is approved the person must then join the Red Cross and buy their own uniforms. After this they are assigned to the hospital for further reassignment to the ARU (37). This procedure could quite naturally discourage individuals who would be willing to offer their services to the ARU. The people concerned could be wives of alcoholics, A. A. members, and others with whom the patients could readily identify.

The treatment program at Oak Knoll differs from that at Long Beach in several respects. First, patients at the ARU are not required to join A. A., although they are not discouraged from doing so. The ARU has no A. A. group of its own. There are still some ties to A. A. however, in that much of the educational material used by the ARU is distributed by A. A. and A. A. members frequently hold group discussions. Like the ARC, the ARU makes every effort to provide dependents of patients with information about alcoholism and information about groups such as Al-Anon and Alateen in the area. Group thereapy and the use of movies are relied on heavily by the ARU, although the scheduling is not so highly organized as is the case with the ARC's. The use of Antabuse is on a voluntary basis at the ARU. When the schedule of the hospital permits, the ARU provides discussions led by doctors and psychiatrists as does the ARC, but they are not held on a regular basis.

Both the ARC and the ARU send form letters to wives of patients in order to try to involve them in the rehabilitation effort. A sample of this letter has been placed in Appendix D for reference.

C. REHABILITATION STATISTICS

Nearly every program director is faced with the requirement to produce some type of statistics relating to the success of his program. The Navy's Alcoholic Rehabilitation Program is no different. Officially, the ARC Long Beach

claims a rehabilitation rate or percent effectiveness as of February 1, 1973 of 82 percent for enlisted patients and 45 percent for officer patients, based on total admissions of 1418 patients (79). Information from the Bureau of Personnel reports overall success rates for the ARC's and ARU's of about 72 percent effective for enlisted personnel, and about 66 percent effective for officer personnel (23). Although these figures sound remarkably encouraging, it is necessary to have some understanding of just how they are determined. In the first place, it should be pointed out that at the present time all of the ARC's and ARU's are filled to capacity and that there is a waiting list. Currently, it may take as long as two months before an individual may be admitted. A fairly recent report indicates that the men lowest on the waiting list face 30 to 60 day waiting periods due to the shortage of treatment facilities and there are an excessive number of cancellations as a result (23). Predictably, many prospective patients never get to start the program. This occurs due to transfer, retirement, deployment of the individual's unit, or other reasons. To clarify the previous statement, it should be pointed out that deployment or transfer do not render a man ineligible for treatment, but rather some other factor enters which causes the man not to go. One reason frequently cited by those working in the field, but unsubstantiated by statistical evidence, is that after a man has been told he has a problem with alcohol and is scheduled for treatment

he may very likely try to prove to himself and others that he has no problem by successfully abstaining for a period of time. By doing this he may convince those above him that he really no longer needs the treatment.

The 82 percent effectiveness quoted in the previous paragraph is not, as might be first thought, indicating that of the 1418 patients, 82 percent of those who were enlisted were considered effective. It means that 82 percent of the enlisted patients who underwent the program can be classified as rehabilitated. This way of measuring effectiveness seems to be somewhat universal in that A. A., too, determines its rehabilitation rate on the basis of alcoholics who are members. Those who do not feel they can handle the program simply do not join. This method of presenting statistical measures is obviously designed to offer an optimistic view of the opportunities for rehabilitation to both prospective patients and to program sponsors. Of the 1418 patients mentioned earlier, 1295 were enlisted and of these 339 are remaining on active duty. Of this 339, the number of personnel labelled effective is 277 (79). While 277 is approximately 82 percent of 339, it is only approximately 21 percent of 1295, a figure which, if presented to the general public, would hardly be drawing praise. Those patients who did not complete the program or who were not counted were, for the most part, separated or retired from active duty and as such are not in a follow up status. The lack of follow up on separated or retired personnel is due in part to the

fact that the Navy's alcoholic program is limited at the present time to active duty personnel only and in part to the lack of resources available to maintain records of separated personnel. The whole rehabilitation program is geared towards returning to active duty as many recovered alcoholics as possible, as the loss of well trained personnel is an economic loss to the Navy. Many of the Navy's alcoholics are, however, near the end of their useful service to the Navy and due for separation or retirement at the time they are finally identified as alcoholics. If the average age of enlisted alcoholics treated is around 31 or 32 years of age, then it can be seen that many of them must be near the 20 year point (most enlisted personnel are 37 or 38 years of age at this point). In all fairness to the program, those personnel for whom no follow up is initiated should probably not be considered failures any more than they should be considered effective. It is this writer's opinion, however, that if job intactness is one measure of the prognosis of an individual suffering from alcoholism, the probable percentage of successful rehabilitation for those personnel not on active duty would be lower than for those remaining on active duty.

The statistics for officer personnel are developed in a different, more straightforward manner. The 45 percent effectiveness advertised is, in this case, a result of 56 out of 123 patients being classified as effective (79).

No explanation is given for why the officer statistics differ in method from the enlisted statistics.

Once a patient is discharged from a rehabilitation program, follow up reports are made on him in order to determine whether or not the individual can still be classified as rehabilitated. The follow up letters are sent to the individual's commanding officer at intervals of 6 months for a period of two years immediately after discharge and yearly intervals thereafter (45). A sample of the follow up letter has been placed in Appendix E for reference. The returned reports are evaluated on a purely subjective basis with primary emphasis being placed on the last statement on the report, that stating whether or not the man would be recommended by the command for reenlistment at the present time (23). Reports are continued until the individual leaves the service.

It is interesting to note that for statistical purposes, all discharged patients are classified effective until such time as a negative report is returned on them (45). It is important to point out again the average age patient only has six or seven years remaining on active duty before he is eligible for retirement and thus, there is really no way of knowing whether or not rehabilitation will prove effective over a long period of time. When a negative report is received on an individual the normal procedure is to query the individual's command regarding the action they intend

to take. The action to be taken could consist of reassignment back to an ARC or ARU or discharge proceedings.

VIII. CONCLUDING COMMENTS

It appears that for the next several years the Navy will be playing "catch up" with its rehabilitation program. There is, at present, no reason to believe that the rate of alcoholism in the Navy is anything less than it is among the civilian workforce. Using a conservative three percent for estimation purposes, there are about 18,000 alcoholics in the Navy. Fourteen ARU's and three ARC's operating at capacity on a six week cycle could theoretically handle about 3400 patients a year. This of course indicates it would take over five years to treat the alcoholics in the Navy right now.

The Navy is currently making an effort to educate personnel about alcoholism, but at the same time is stressing the fact that a "witch hunt" is not desirable as the system is already overloaded with genuine alcoholics. The education process still has a long way to go, as the subject of alcoholism is still considered a joking matter by a large number of individuals. As long as heavy drinking is a joking matter and socially acceptable within the Naval establishment there will be alcoholics who need treatment going undetected. These individuals will probably be performing inadequately in a Navy that due to present and future manning levels, cannot tolerate an unnecessary lack of efficiency.

The Navy has a tremendous opportunity to engage in some really significant research in the field of alcoholism. Much

background and personal information is collected from Navy alcoholic patients, but obtaining this information is extremely difficult. The potential researcher in this field is faced with two monumental problems as far as the Navy is concerned. First, he must find out who has the information. Most of the information probably is kept somewhere in the Bureau of Navy Personnel. On one occasion this writer was referred to a succession of five different offices in the Bureau of Naval Personnel, the last office being the one to which the call was initiated. Second, he must persuade the individual who has the information to let him use it. It seems as if a thesis writer's request for information is assigned an extremely low priority. On two occasions this writer was promised information which never came.

Because of the lack of research in the field of Navy alcoholism, some very basic questions remain unanswered. Why do some ratings appear to show a higher incidence of alcoholism than do others? Is it due to selection processes? Is it due to the job itself? What significant background differences, if any, are present in the alcoholics in their early 20's as compared with those in their middle 30's? How many alcoholics are allowed to retire untreated? What are the long term prospects for rehabilitation programs? Does the Navy way of life contribute to alcoholism, and if so why are there no treatment facilities for retired personnel? Are rehabilitated alcoholics discriminated against due to their alcoholic background?

Should they be? Is there any relationship between security violations and alcohol abuse? What are the prevailing attitudes among fleet personnel about alcoholism? Is the Navy deriving any measurable economic benefits from rehabilitation programs? Are rehabilitated alcoholics qualified to rehabilitate other alcoholics simply by virtue of the fact that they have "been there"?

According to Schuckit, the majority of personnel doing research or working in the field of alcoholism have some emotional or personal connection with the disease. They might have alcoholic relatives or friends or might be alcoholics themselves (64). Emotional involvement could probably hinder true objective thought in this area. It is this writer's opinion based on personal experience while researching this paper that non-alcoholics attempting to work in the field of alcoholism are viewed with suspicion as to possible ulterior motives. Because of this and other reasons gathering data is made difficult. If this situation is real and not just imagined, the consequences could be serious. One would think that any and all help would be welcomed to help understand and combat a disease which affects the lives of as many individuals as does alcoholism.

In summary, it appears the Navy's alcoholic rehabilitation programs are, from a success standpoint, on a par with those in civilian industry. This is difficult to assess conclusively, however, due to probable differences in the effectiveness measures used. Since most industrial

rehabilitation programs have been in operation for at least a few years, their rehabilitation rates are probably more reliable than are the Navy's. In order that various programs be realistically evaluated it would be desirable for the major alcohol-related groups to arrive at a generally accepted set of standards for measuring effectiveness.

As has been previously mentioned, there is nothing particularly new or innovative about the Navy's approach to the problem. There are simply insufficient resources available, in terms of money and manpower, to sponsor a great deal of research in this area. As the program is still young, it is difficult to make any meaningful qualitative judgment about its ultimate success. It is this writer's opinion that if it does succeed, it will be largely due to the enthusiasm and effort on the part of the staff personnel at the local levels. If it fails, it may be due to a seemingly parochialistic attitude among staff personnel in Washington.

APPENDIX A

"Z" TEST STATISTIC USED FOR DETERMINATION OF ALCOHOLIC SIGNIFICANCE BY RATING*

Test Statistic:

$$Z = \frac{P_s - P_p}{\sqrt{\frac{P_p Q_p}{n}}}$$

Where P_s = The fraction of alcoholics in the sample for a particular rating

P_p = The fraction of the Navy population represented by the rating

$Q_p = 1 - P_p$

n = Sample Size = 202

Rejection Region: $|Z| \geq 1.96$, for $\alpha = 0.05$
$|Z| \geq 2.58$, for $\alpha = 0.01$

(two-tailed test)

* Refs. (17, 47)

APPENDIX B

"TWELVE STEPS" AND TWELVE TRADITIONS" OF ALCOHOLICS ANONYMOUS

"Twelve Steps" of Alcoholics Anonymous:

"1. We admitted we were powerless over alcohol, that our lives had become unmanageable.

2. Came to believe that a power greater than ourselves could restore us to sanity.

3. Made a decision to turn our will and our lives over to the care of God as we understand Him.

4. Made a searching and fearless moral inventory of ourselves.

5. Admitted to God, to ourselves and to another human being the exact nature of our wrongs.

6. Were entirely ready to have God remove all those defects of character.

7. Humbly asked Him to remove our shortcomings.

8. Made a list of all persons we had harmed, and became willing to make amends to them all.

9. Made direct amends to such people wherever possible, except when to do so would injure them or others.

10. Continued to take personal inventory and when we were wrong, promptly admitted it.

11. Sought through prayer and meditation to improve our conscious contact with God as we understood Him.

12. Having had a spiritual awakening as the result of these steps, we tried to carry this message to alcoholics and to practice these principles in all our affairs."
(4, p.1)

APPENDIX B (CONT'D)

"Twelve Traditions" of Alcoholics Anonymous:

"1. Our common welfare should come first; personal recovery depends upon A. A. unity.

2. For our group purpose there is but one ultimate authority - a loving God as He may express Himself in our group conscience. Our leaders are but trusted servants: They do not govern.

3. The only requirement for A. A. membership is a desire to stop drinking.

4. Each group should be autonomous except in matters affecting other groups or A. A. as a whole.

5. Each group has but one primary purpose - to carry its message to the alcoholic who still suffers.

6. An A. A. group ought never endorse, finance, or lend the A. A. name to any related facility or outside enterprise lest problems of money, property and prestige divert us from our primary purpose.

7. Every A. A. group ought to be fully self-supporting, declining outside contributions.

8. Alcoholics Anonymous should remain forever nonprofessional, but our service centers may employ special workers.

9. A. A., as such, ought never be organized; but we may create service boards or committees directly responsible to those they serve.

10. Alcoholics Anonymous has no opinion on outside issues, hence the A. A. name ought never be drawn into public controversy.

11. Our public relations policy is based on attraction, rather than promotion; we need always maintain personal anonymity at the level of press, radio and films.

12. Anonymity is the spiritual foundation of our traditions, ever reminding us to place principles before personalities." (4, p. 33)

APPENDIX C

SAMPLE WEEKLY SCHEDULE FROM ARC LONG BEACH

MONDAY

0800-0830	Clean Up
0830-0945	Group Therapy, Group two Bldg. 63 Vivian Gary
0830-0945	Group Therapy Group one Bldg. 63 Topside
0830-0945	Discussion Groups Mike McCurry
1000-1130	Movies on Alcoholism
1015-1200	Counseling Bldg 2 Rm 123s Vivian Gray
1015-1200	Counseling Bldg 2 Rm 122n Mike McCurry
1300	Psychological Testing
1300-1430	A. A. Meeting Group Five
1300-1500	Staff Conference Bldg. 2
1500-1700	Marriage Counseling Bldg. 12
1830	A. A. Meeting Downey Rocky Timers
1900	Eastside Open Door Meeting (Officers group only)
	DUTY COUNSELOR JOHN EPSON

TUESDAY

0800-0830	Clean Up
0830-0945	Group Therapy Group Three Bldg 63 Topside
0830-0945	Discussion Groups Mike McCurry
1015-1200	Counseling Bldg. 2 Rm 122n Mike McCurry
1000-1130	Bob Dorris
1200-1600	Marathon Group Therapy Group four Bldg. 63
1300-1430	Joe Mallard
1915	Naples Meeting
	DUTY COUNSELOR CLARENCE BECKER

WEDNESDAY

0800-0830	Clean Up
0830-0945	Group Therapy Group Five Bldg 63 Vivian Gary
0830-0945	Group Therapy Group Eight Flbd 63 Topside
0830-0945	Discussion Groups Mike McCurry
1000-1500	Counseling Bldg 2 Rm 123s Vivian Gary
1000-1500	Counseling Bldg 2 Rm 122n Mike McCurry
1000-1130	Paul
1300-1430	Chaplain
1430-1600	Individual Counseling Assigned Counselor
1430	Organized Patient Athletic Program (See Jerry Jones)
1930	A. A. Meeting Mother Group
1915	A. A. Meeting Icebreakers Group
	DUTY COUNSELOR JERRY JONES

Note: Medical Lecture normally held on Wednesday

APPENDIX C (CONT'D)

THURSDAY

0800-0830	Clean Up
0800-0830	Patients being discharged meet with Chief Becker
0830-0945	Group Therapy Group Seven Bldg 63 Vivian Gary
0830-0945	Discussion Groups
1015-1200	Counseling Bldg 2 Rm 123s Vivian Gary
1000-1130	Bob Ashton
1245	Staff Only Psychodrama Bldg 63
1300-1430	Psychodrama
1430-1500	Staff Only Psychodrama
1500-1600	Counseling Vivian Gary Bldg 63
1500-1600	Individual Counseling Assigned Counselor
2000-2130	A. A. Meeting "Dry Dock" Group Seven
2000-2130	Al-Anon Meeting Bldg 63
2000-2130	Al-Ateen Meeting Bldg 2
	DUTY COUNSELOR ARCHIE TYLER

FRIDAY

0800-0900	Field Day and Inspection by CMAA
0900-1000	Discussion Groups
1000-1130	Tony
1230-1400	A. A. Step Meeting
1930	A. A. Meeting Los Altos
	DUTY COUNSELOR JOHN EPSON

SATURDAY

0915	Muster
1000	Rap Session
1900	A. A. Meeting Paramount
1900	A. A. Meeting Speakers Group

SUNDAY

0930	Muster
0930-1500	All day activities at Long Beach Gen. Hospital
1930	A. A. Meeting East Bay

APPENDIX C (CONT'D)

Explanation of Schedule:

Personal names listed on the schedule are those of counselors assigned to the ARC. In addition to individual counseling, the counselors also lead discussion groups.

The names Rocky Timers, Naples, Mother Group, Icebreakers Group, etc. refer to Alcoholics Anonymous groups. The patients are either members or visitors of these groups.

Paul and Tony are the first names of A. A. members who are scheduled to give talks. A. A. members do not generally use their last names.

APPENDIX D

SAMPLE ARC/ARU LETTER TO WIVES OF PATIENTS

Dear Mrs. ______________________:

As you may know your husband is a patient at the Alcoholics Rehabilitation Center, Naval Station, City, State. Because the disease of alcoholism affects the families of our patients it is felt by our staff that the following information would be of interest to you.

Alcoholism is generally defined as a chronic, relapsing, progressive disease characterized by loss of control of drinking alcoholic beverages to the point of interfering with interpersonal relationships, the ability to work and health.

Some of the common myths about alcoholism are: The skid row bum is a typical alcoholic; the alcoholic must hit rock bottom to be treated; Beer is less liable to produce alcoholism than whiskey; if one does not need a drink in the morning one if probably not an alcoholic; a relapse in the sober patient demonstrates the hopelessness of alcoholism; the alcoholic must drink all the time and always gets drunk. These myths have all been proven false. Alcoholism is a complex disease and workers in the field generally agree that an interplay of hereditary, social, cultural, biochemical, psychological, nutritional and spiritual factors probably play a role.

APPENDIX D (CONT'D)

The treatment your husband receives at this center includes: antabuse, (a medication that discourages drinking), group psychotherapy, lectures, educational movies, discussions, psychodrama, individual counseling, marriage counseling (when needed) and daily attendance at Alcoholics Anonymous meetings.

It has been reported by some wives that after a period of treatment there was a change in their husband's attitude and behavior. It would be a help to you and a great help to your husband if you could attend some Al-Anon meetings in your area and learn more about the disease of alcoholism and how other wives are coping with this problem. If there are teenage children in the family that have been affected by your husband's illness, they could attend Al-Ateen meetings if available. To find out when and where these groups meet, contact the local Alcoholics Anonymous in your area. They are generally listed in the telephone book.

It is hoped the above information will be of help to you in understanding your husband's illness. If I can be of further assistance to you please contact me at: Alcoholic Rehabilitation Center, Naval Station, City, State. If you are in this area I can be reached at 547-7751 between 10 a.m. and 12 p.m. and 2 p.m. and 3:30 p.m.

Sincerely,

Tom Dick Harry Smith
Counselor

APPENDIX D (CONT'D)

This statement to be placed on white copy only and signed by the patient: This letter being sent to my wife with my approval: ______________________________
Patient's Signature.

APPENDIX E

SAMPLE FOLLOW-UP REPORT

NAVAL HOSPITAL
Alcoholic Rehabilitation Center
City, State, Zip

From: Head, Alcoholic Rehabilitation Center, Naval Hospital

To:

Re: ____
Rate First Name Middle Initial Last Name Ser# B/C Ser

Encl: (1) Research Statistical Survey Report
(2) Return addressed envelope

1. The enlisted man whose name appears on enclosure (1), is listed on the Navy Enlisted Master Tape as being a member of your command. At one time he was treated at this hospital due to alcoholism, Chronic and was returned to full duty.

2. In order to evaluate the patient's adjustment and performance of duty since his discharge from hospitalization, enclosure (1) is submitted for completion by subject's division officer or medical department representative. It is requested that this survey be handled on a confidential basis.

3. If the above named member is no longer attached to your command and has been transferred, please forward enclosure (1) to his new commanding officer.

4. Your cooperation will be greatly appreciated.

APPENDIX E (CONT'D)

Naval Hospital
Alcoholic Rehabilitation Center

Survey No.____________
Date__________________

____
(Rate)(First Name)(Middle Initial)(Last Name)(Serv No)(Service)

Date subj discharged from hospitalization___________________

Date subj reported aboard present command___________________

Please endeavor to make an evaluation even if man has been aboard only a short period.

Subjects work performance has been _______________________
(Indicate Quality)

Subjects military behavior has been _______________________
(Indicate Quality)

Subjects leadership has been_____________________________
(Indicate Quality)

Subjects adaptability has been___________________________
(Indicate Quality)

Subjects military appearance has been______________________
(Indicate Quality)

Has subject had any disciplinary problem?___________________

Does subject drink alcoholic beverages?_____________________

Has subject been readmitted to Sick List?_______________
If "yes", was it due to excessive alcohol abuse? ________

If subject has returned to drinking has an attempt been made to encourage him to again seek sobriety by active participation in Alcoholics Anonymous or other related organizations?
__________(yes) __________(No)

Is subject being administered Antabuse (Disulfiram) tablets under medical supervision? __________(Yes) __________(No)

At this time would you recommend this man for reenlistment in accordance with BUPERS MANUAL, ART., 1040300?____(Yes)____(No)

____
Signature(Name,Rank,Title)

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13. ABSTRACT

Alcoholism has been called the most serious drug problem in the United States today. Estimates vary, but the rate of alcoholism in the Navy is probably at least as high as that found in the civilian workforce (between three and five percent of all employed personnel). Alcoholism is a multifaceted disease for which no cure has been found, but which can be arrested. This paper discusses the Navy alcoholic and presents data which indicates the typical Navy alcoholic is in his early thirties, he is in a rating which is not highly technical in nature, he has some type of security clearance, and he is either on shore duty outside the United States or on sea duty. To treat alcoholics the Navy has a series of Alcoholic Rehabilitation Centers and Alcoholic Rehabilitation Units at Navy hospitals around the country. These are largely staffed by recovered alcoholics who use generally accepted methods of treatment. Published Navy rehabilitation rates generally exceed an overall rate of 65 percent effective, although there are some questions about the validity of the statistics.

KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Alcoholism						
Problem Drinking						
Navy Enlisted Alcoholics						
Navy Alcoholics						
Alcohol Abuse						
Alcoholic Rehabilitation						

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